Essays in Mergers and Acquisitions

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To my parents, Jing Ouyang and Dongfang Gao

To my husband, Chong Huang

To my daughters, Jeannie Huang and Annie Huang

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ABSTRACT
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Mergers and acquisitions are one of the most important corporate investment decisions that are often strategic. During the decision making, managers and shareholders are exposed to all sorts of information sets regarding merger opportunities and deal evaluation. In this dissertation, I examine whether managers and shareholders use valuable information from financial advisors and the financial market and disregard potentially misleading information from financial advisors when making merger investment decisions.

The first essay is titled "*Do Shareholders Listen? M&A Advisor Opinions and Shareholder Voting*. Recent studies find that merger advisors, in particular those of the acquirer, often face conflicts of interest and present overly optimistic opinions about a deal. It is not clear, however, how shareholders react to these opinions. Using a sample of mergers announced from 2000 to 2006, we examine whether target and acquirer advisors' opinions (valuation of target equity, long-term earnings forecasts, and affiliated analyst recommendations) impact how acquirer shareholders vote on mergers. Our results indicate that target advisor opinions, but not those of acquirer advisors, significantly impact shareholder voting. Further, if a deal receives higher shareholder support, the merger advisor is more likely to be retained in future deals. Finally, acquirer advisor opinions are negatively related to post-merger performance. We conclude that shareholders are able to discern the potential conflict of interest of merger advisors and

follow the advice of the less-optimistic target advisors. Our study provides important evidence for the ongoing debate about regulatory reform governing investment banking transactions.

The second essay is titled "*Stock Price Idiosyncratic Information and Merger Investment Decisions*". I define stock price idiosyncratic information (SPII) as investors' firm-specific information impounded into stock price through informed trading. My study examines whether SPII provides managers the new information about the value of growth opportunities and improves merger investment decisions. Focusing on 2,018 major merger transactions announced during the period from 1990 to 2006, I find the acquirer SPII increases the sensitivity of merger investment to q. It is positively associated with acquirer announcement return, combined merger return, long-run abnormal return, and post-merger operating performance. Furthermore, these relations are mainly driven by acquirers with high q or blockholder ownership. My main results are robust to the endogeneity issue and the inclusion of manager's private information. Overall, these results support my learning hypothesis. Further, management learning efficiency is positively related with firm growth opportunities, management quality, and corporate governance. My study provides important evidence that managers learn from the stock market in making merger investment decisions.

CHAPTER I: Do Shareholders Listen?
M&A Advisor Opinions and Shareholder Voting

I. Introduction

In merger transactions, acquirer and target firms frequently seek opinions from financial advisors. Kisgen, Qian, and Song (2009) document that 45% of acquirers and 82% of targets obtain financial advisors' opinions in 1,175 mergers from 1994-2003. In their letters to the boards and shareholders of the merging companies, financial advisors systematically conclude that the merger under consideration is fair to the merging firms. Prior studies, however, document that financial advisor fees are typically contingent upon deal completion (Kisgen et al. 2009; Davidoff, Makhija and Narayanan, 2007; Becher and Jeurgens, 2011). As a result, financial advisors have the incentive to provide opinions that increase the likelihood of deal completion rather than maximize shareholder wealth (McLaughlin, 1990; Rau, 2000; and Kolasinski and Kothari, 2008). This potential conflict of interest has attracted attention from regulators. In 2007, the Securities and Exchange Commission (SEC) approved Rule 2290 that requires Financial Industry Regulatory Authority (FINRA) member firms to fully disclose any potential conflict of interest in the process of reaching their fairness opinions presented to shareholders of public firms involved in acquisitions.

Nevertheless, prior studies of stock market reaction to merger announcements document that mergers, on average, do not create wealth for acquirer shareholders (Travlos, 1987; Amihud, Lev, and Travlos, 1990; Moeller, Schinglemann, and Stulz, 2005). For example, Moeller et al. (2005) detail that acquirer shareholders lost nearly

$216 billion in the 1990s. Kisgen et al. (2009) document that acquirer announcement returns are 2.3% lower when their advisors provide fairness opinions. Many mergers, however, require shareholder approval and shareholders can block a deal if the majority of them believe the merger is not in their best interest. Thus, whether acquirer shareholders can discern financial advisors' opinions and vote on the merits of a merger has important consequences.

In this study we examine whether advisor opinions influence shareholder voting on mergers. If shareholders can ascertain the value of a merger and vote on its merit, financial advisors' biased opinions will have little impact on how shareholders vote. In this case, financial advisors' potential conflict of interest has little consequence for shareholder wealth. On the contrary, if merger advisors' opinions can substantially affect how shareholders reach their voting decision, these opinions could significantly impact shareholder wealth. In this case, additional regulations and/or disclosure may be warranted to help reduce conflict of interests.

Based on the literature, we propose three hypotheses to examine the relation between advisors' opinions and shareholder voting: passive listener, uninterested listener, and active listener hypotheses. The *Passive Listener hypothesis* postulates acquirer shareholders listen to advisor opinions regardless of potential conflicts of interest. This hypothesis predicts higher shareholder support for a deal when a financial advisor's opinion is more favorable. The *Uninterested Listener hypothesis*, however, suggests acquirer shareholders do not listen to advisors and vote without considering their opinions. This hypothesis predicts no significant relation between shareholder voting and advisor's opinion. Finally, the *Active Listener hypothesis* proposes that acquirer

shareholders are able to recognize the potential conflict of interest in acquirer advisors' opinions. Previous studies, as well as our empirical evidence, suggest target advisors are more conservative and less optimistic about deal outcome.[1] This hypothesis predicts that target advisor opinions are more likely to impact acquirer shareholders' votes.

The focus of our analyses is the acquirer shareholders' approval rate, which is measured as the percent of shares held by outside shareholders that support a deal. To measure financial advisors' opinions, we collect three sets of information. First, we collect financial advisors' valuation on target firm equity. The scaled difference between the offer price and the midpoint of target equity valuation is a measure of whether a financial advisor believes the acquirer over- or under-pays for the target. Second, we measure financial advisors' opinions with their long-term EPS forecasts for the combined firm. Blockholders and institutional investors likely focus on long-term profits, rather than short term gains or losses (Chen, Harford, and Li, 2007; Holmstrom and Tirole, 1993). As a result, acquirer shareholders may be more likely to vote for a deal if they perceive an increase in long-term EPS. Third, we examine affiliated analysts' recommendations after a deal is announced. Affiliated analysts work for the same investment bank as the merger advisor. Their recommendations, therefore, may be motivated by deal completion (Becher and Juergens, 2011 and Kolasinski and Kothari, 2008).

Using hand-collected data of financial advisors' opinions on 136 mergers announced from 2000 to 2006, we show that acquirer shareholders listen to target advisors but tend

[1]See, Kesner, Shapiro, Sharma (1994), Allen, Jagtiani, Peristiani,Saunders (2004), and Cain and Denis (2011).

to discount acquirer advisors' opinions. Acquirer shareholders' approval rate increases 3.9% when target advisors' equity valuation increases one standard deviation and increases 6.8% when they provide EPS forecasts. This rate increases by 11.7% when target-affiliated analysts issue recommendations on the acquirer after a deal is announced. We, however, find no consistent evidence acquirer shareholder voting is related to their own advisor's opinions. These results support the active listener hypothesisas acquirer shareholders appear more likely to respond to target advisor opinions.

We also find that the acquirer advisors are more optimistic in their valuation of target equity and their affiliated analysts provide more optimistic recommendations when the market reacts negatively to an announcement. In addition, favorable acquirer advisor opinions are associated with poor post-merger long-run performance. These findings suggest that acquirer advisors provide over-optimistic opinions about mergers they advise. Target advisors and their affiliated analysts, on the other hand, do not appear to be overly optimistic. Finally, we examine whether shareholder support for a merger impacts the likelihood an advisor is retained in future deals. A one standard deviation increase in the shareholder voting ratio increases the probability of advisor retention for future deals by nearly 6%. This suggests a merger advisor's perceived ability to garner shareholder support is highly valued.

Overall, our results imply that acquirer shareholders are able to discern acquirer advisors' overly optimistic opinions and appear to follow target advisors' relatively conservative opinions. Our paper contributes to the discussion about financial advisors' conflict of interests on shareholder wealth as well as provides evidence on the efficacy of

shareholder voting.[2] The remainder of this article is organized as follows. Section I discusses related literatures and develops hypotheses. Section II describes the data and main variables. Section III presents our main empirical results while Section IV details additional tests. Section V concludes.

II. Literature Review and Hypotheses Development

This paper is related to two streams of literature: financial advisors' role in mergers and acquisitions as well as shareholder voting on corporate decisions. The discussion about financial advisors' role focuses on the benefits and potential conflict of interests of their advisory services. The debate on shareholder voting centers on how shareholders vote and the efficacy of their votes. In this section, we review these studies and propose three hypotheses.

A. Financial Advisors' Opinions

Financial advisors possess certain expertise that may reduce information asymmetry in financial transactions (Bowers and Miller, 1990). Servaes and Zenner (1996) note that acquirers are more likely to hire financial advisors when deals are more complex and information on targets is less available.Kisgen et al. (2009) find the presence of a fairness opinion is positively related to deal complexity as well as board monitoring; suggesting

[2]Studies on acquirer shareholder voting find it is significantly related with deal characteristics, indicating that acquirer shareholder voting has a monitoring effect (Hamermesh, 2003 and Hsieh and Wang, 2008). Our results provide further evidence this monitoring effect is robust to the presence of financial advisors' biased opinions.

fairness opinions provide valuable information to management and shareholders as well as legal protection to managers and boards of directors.

The reputation of the financial advisors appears to benefit the shareholders. Bowers and Miller (1990) detail that total combined returns are higher when either party (target or bidder) hires a top-tier investment bank.[3] Kale, Kini, and Ryan (2003) document that shareholders gain a higher portion of merger synergies when their financial advisors have higher reputation relative to the counter party.[4]Bao and Edmans (2011) find that stock returns from an investment bank's prior deal predict returns on future deals advised by the same investment bank.

While financial advisors may create value, conflicts of interests may explain why studies document non-positive acquirer returns in mergers. McLaughlin (1990, 1992) argue that contingent fee payments may lead to conflicts of interest. Rau (2000) finds that a higher proportion of top tier investment banks' advisory fees are contingent and that acquirers advised by these advisors are more likely to complete a deal, but pay higher premiums. Further, financial advisors' conflict of interest may affect their affiliated analysts' recommendations. Becher and Juergens (2011) provide evidence that advisors' affiliated analysts undertake actions to ensure deal completion. Kolasinski and Kothari (2008) detail that analysts affiliated with advisors provide biased recommendations to maximize financial advisors' expected revenue. Collectively, this evidence suggests

[3]Bowers and Miller (1990) define first-tier bankers as those listed directly below the manager and co-manager in the tombstones placed in the financial section of newspapers.
[4]The authors define reputation as financial advisors' investment banking market shares in the year of a merger.

financial advisors may face conflicts and provide opinions that maximize their own benefit at a cost to shareholders.

Acquirers, targets and financial advisors may all have different interests in mergers. Specifically, acquirers want to pay a lower acquisition price, while targets want the opposite. Kesner, Shapiro, and Sharma (1994) document that the positive relation between financial advisors' compensation and merger premium aligns interests between target shareholders and their financial advisors, but creates a conflict of interest between acquirer shareholders and their advisors. Allen, Jagtiani, Peristiani, and Saunders (2004) find that target advisors with a prior lending relation to the target serve a certification effect while acquirer advisors do not have such effect.

This dichotomy stems from the fact acquirer advisors tend to provide opinions designed to garner future loan commitments from their clients while the target advisor's client ceases to exist after the deal is completed. Cain and Denis (2011) examine financial advisors' valuation of the target and find that only acquirer advisors issue optimisticopinions. Using their methodology, we find similar results (untabulated). Further, we examine the choice of financial advisor using a sample of combined firms that engage in another deal within three years of the sample deal. In these future deals, these firms are nearly four times more likely to hire the current acquirer advisors than target advisors. Taken together, these studies suggest target advisors may have less incentive to provide over-optimistic opinions.

B. Shareholder Voting in Corporate Decisions

Mergers often require shareholder approval. Easterbrook and Fischel (1983) and Harris and Raviv (1988) argue that shareholder voting has limited efficacy due to free-rider and agency problems. Matvos and Ostrovsky (2008) find mutual funds that own both target and acquirer stocks are more likely to vote for a merger at an acquirer shareholder meeting, even though the deal reduces acquirer shareholder value. Bethel and Gillan (2002) find managers tend to classify proposals as routine, rather than non-routine, to validate brokers' uninstructed votes for a better outcome. Finally, the evidence that shareholder votes have little impact on future performance suggests shareholder voting may have limited efficacy (Gillan and Starks, 2007; Karpoff, Malatesta, and Walkling, 1996).

Other studies, however, detail that some shareholders cast votes based on performance, providing a potential threat to management. Cai, Garner, and Walkling (2009) and Gordon and Pound (1993) document a statistically significant relation between shareholder voting and prior firm performance. Thomas and Martin (2000) examine voting on stock option plans and show that shareholders are more likely to support such plans at poorly performing firms. They conclude shareholders' voting may help to align managers' interests. Martin and Thomas (2005) note that changes in compensation are significantly lower if shareholders strongly oppose management-sponsored stock option plans, suggesting boards react to shareholders' voting outcomes. Moreover, significant shareholder opposition in voting outcomes often leads to governance and management reforms (DeAngelo and DeAngelo, 1989; Dodd and Warner, 1983; Mulherin and Poulsen, 1998; and Cai, et al., 2009).

Overall, the evidence from these studies suggests that shareholder voting can be an effective mechanism to protect shareholders' interests in major corporate events. In this study, therefore, we examine whether financial advisors can affect shareholder voting decisions in mergers.

C. Hypotheses

We develop three hypotheses to examine whether acquirer shareholder voting behavior is impacted by target or acquirer financial advisors' opinions. First, the *Passive Listener hypothesis* states that acquirer shareholders rely on financial advisors' opinions in their voting decisions. This hypothesis postulates that acquirer shareholders listen to their advisors regardless of potential conflicts of interest. Financial advisors may have expertise in identifying merger partners with higher potential synergy as well as valuing merger gains. Bowers and Miller (1990) find the choice of financial advisors affects combined target and acquirer returns. Bao and Edmans (2011) show persistent acquirer announcement returns among different deals advised by the same bank and conclude that investment bank skills affect their clients' shareholder wealth. Kisgen et al. (2009) and Servaes and Zenner (1996) document the probability of hiring a financial advisor increases with deal complexity and when the potential legal risk from conflicts of interest between the board and shareholders is highest. As a result, shareholders may be unable to recognize the bias in advisor opinions and rely on these opinions in their voting decisions. This hypothesis predicts a positive relation between financial advisor's opinion on a merger and shareholder support for this deal.

Next, the *Uninterested Listener hypothesis* centers on the notion that acquirer shareholders recognize their financial advisors face potential conflicts of interest. In particular, shareholders are aware financial advisors provide opinions geared to deal completion rather than wealth maximization. McLaughlin (1990, 1992) argues a contingent advisory fee structure may trigger financial advisors' conflicts of interest for deal completion regardless of quality. In addition, financial advisors may take advantage of their position to the detriment of current shareholders (Bodnaruk, Massa, and Simonov, 2009). Financial advisors' affiliated analysts may also issue over optimistic recommendations to ensure maximum fee revenue (Becher and Juergens, 2011; Kolasinski and Kothari, 2008). Due to these potential conflicts of interest, acquirer shareholders may deem all financial advisors' opinions biased and not take any advisor's opinion into consideration when evaluating mergers.

Finally, the *Active Listener hypothesis* proposes that acquirer shareholders may be able to recognize when financial advisors issue over-optimistic opinions and only react to more conservative opinions. Several studies document that acquirer financial advisors' contingent fee payments and future business opportunities lead to conflicts of interest and, consequently, over-optimistic opinions. Prior studies document, however, that target advisors face less severe conflicts of interest and their opinions may be more conservative. The target firm ceases to exist after a merger, and as a result, the target advisor is less likely to obtain future business, which may reduce her incentive to provide over-optimistic opinions (Davidoff, 2006).

In contrast, acquirer advisors have an incentive to form good relationship with acquirer managers for future business opportunities. To this end, these acquirer advisors

likely present over-optimistic opinions to help management close a deal.[5] To convince target management and board to accept an offer, target advisors have an incentive to provide a lower target valuation and more conservative forecasts. Although such lower valuation may hurt target shareholders with reduced premium, the acquirer shareholders may find such conservative opinions valuable since these opinions may represent a conservative estimation of the target value and merger outcome. This hypothesis predicts, therefore, acquirer shareholders are more likely to listen to the target advisors' opinions.

III. Data and Sample Selection

A. Sample Selection

We start with all mergers announced between 2000 and 2006 on the Securities Data Corporation (SDC) Mergers & Acquisition database.[6] Since we focus on acquirer shareholder voting, the acquirer must be a U.S. public firm, while the target may be public, private, or a foreign. Next, we obtain shareholder voting data from Institutional Shareholder Services (ISS), SEC 8-k filings, or Factiva News search. These data requirements yield a sample of 153 mergers between 2000 and 2006. We collect financial advisors' opinions from the proxy statement related to the merger (form S-4 and various proxy filings). Appendix B illustrates an example of financial advisor opinions provided in proxy statements. Among the 153 mergers, both the target and acquirer firm hire at

[5] Acquirer managers often gain from completing deals despite shareholder losses. Grinstein and Hribar (2004) find acquirer managers receive a substantial merger bonus even if shareholders lose value in a deal.

[6] Our sample ends in 2006 as we require three years of post-merger data to examine the future business relation between financial advisors and the merged firms. Further, the number of stock deals decrease considerable in 2008 and 2009 and there was a substantial increase in distressed or forced deals.

least one advisor in 136 cases. These 136 deals announced between 2000 and 2006 represent our final sample.

The major U.S. exchanges all require shareholder approval if a firm issues over 20% of outstanding shares in a merger.[7] This requirement results in a sample of relatively large target firms. Table I details that the average transaction value-to-acquirer size ratio is 0.80.[8] Stock price data are obtained from CRSP and augmented with data from Yahoo Finance (for targets not available on CRSP). All accounting data are collected from COMPUSTAT.

B. Voting Measures

Our main dependent variable is acquirer shareholder approval rate for merger proposals, which measures outside shareholders' support. We exclude managerial and board ownership and shares held by financial advisors as we expect these parties always vote for a deal given our sample contains only friendly mergers.[9] When a firm has multiple classes of outstanding shares that have differential voting power, we adjust the number of shares by the voting power of each class. Our acquirer shareholders' approval rate, therefore, reflects the outside shareholders' assessment of the deal.

Burch et al. (2004) indicate that shareholders not in favor of a deal often vote "abstain" or do not cast a vote. If the beneficiary owner does not vote, her shares are

[7]NYSE Company Manual section 312.03, AMEX Company Guide section 712, and NASDAQ Marketplace Rules section 4350.
[8]Burch et al. (2004) find average target-to-acquirer size of 0.55 for a 1990-2000 sample while Hsieh and Wang (2008) report average relative size of 0.76 for all stock deals and 1.19 for mixed-payment deals (1990 to 2005).
[9]Target advisors' incentives may be different in hostile deals. Since our sample does not include hostile deals, the opinion of advisors in hostile deals is beyond the scope of this study.

recorded as broker non-votes if these shares held under street name. We, therefore, use the total number of voting shares held by outside investors, rather than votes cast, as the base for the acquirer shareholder approval rate. This measure focuses on outside shareholder support for a deal rather than voting outcome.

$$\text{acquirer shareholder approval rate} = \frac{\text{shares voted for - shares held by managers and financial advisors}}{\text{shares outstanding - shares held by managers and financial advisors}} \quad (1)$$

Table I details that management and board on average own 11.2% of acquirer firm's outstanding voting rights while affiliated institutions own just over 1% voting rights. After excluding these insider votes, on average 63.2% shares held by outside shareholders support these deals.

C. Financial Advisors' Opinions

Financial advisors' opinions are detailed in the "Opinion of financial advisors" section in the joint proxy statement target and acquirer firms provide to their shareholders for approval. Specifically, we collect target firm equity valuation ("discounted cash flow analysis" section) and combined firm EPS forecasts ("pro-forma earnings analysis" section) from this document. Financial advisors' affiliated analyst recommendations, however, are not included in this statement. We obtain these data from I/B/E/S and First Call.

C.1. Target Firm Equity Valuation

In the proxy statement, financial advisors often provide an estimation of target firms' equity value, usually in a valuation range. The offer price relative to the valuation range may indicate whether the acquirer is overpaying. Following Cain and Denis (2011), we define an equity valuation (EV) ratio based on the target's relative selling price:

$$\text{EV ratio} = \frac{\text{average target equity valuation - offer price}}{\text{offer price}} \qquad (2)$$

A positive EV ratio indicates that the estimated target firm value is higher than the offer price, or that the acquirer underpays the target, while a negative EV ratio indicates overpayment.

Table I details that, on average, acquirer advisors value the target equity 3% above the offer price, while the target advisors value the target equity 7% below offer price. The mean and median differences between acquirer and target advisors' EV ratios are 9% and 10%, respectively, and both of these differences have a p-value of 0.01. This evidence demonstrates that acquirer advisors are relatively more optimistic in target firm valuation.

C.2. Advisors' EPS Forecasts

Merger advisors' earnings accretion/dilution forecasts usually cover a period starting from deal completion to several years post-merger. In the first few years after a merger, combined firm earnings often include one-time merger charges and integration costs. The value of such earnings forecasts in long-term valuation is questionable. Management and their financial advisors, however, often suggest the earnings forecast in the last year of

the period can be extrapolated into later years. Thus, in our analysis, we focus on the financial advisors' earnings forecast for the last year of the forecast period.

EPS forecasts can be based on GAAP, cash, or book value EPS, and with different synergy scenarios. Even when advisors provide the same type of forecast, the forecast horizon may be different. For consistency, we collect target and acquirer advisors' EPS forecasts based on the same criteria whenever possible. If target and acquirer advisors use different EPS criteria, we select the GAAP EPS forecasts with the highest synergy or other most optimistic forecasts.[10]

EPS forecasts are often descriptive, such as accretive, neutral, or dilutive. In our sample, descriptive EPS projections are available from acquirer advisors in 98 cases, 78 cases from the target advisors, and 68 cases from both advisors. In some occasions, merger advisors also provide specific numbers of EPS forecasts. In our sample, however, numerical EPS projections are available only in 19 cases from both advisors. As a result, we measure EPS forecasts with three categories: accretion, neutral, and dilution. Table I reflects that in the majority of cases, advisors predict accretive EPS for the acquirer after the merger. Financial advisors often provide a range of EPS forecasts under different scenarios of merger synergies. Table I details that acquirer (target) advisors provide non-dilutive EPS forecasts in 88 (71) deals, provide at least one dilutive EPS forecasts in 10 (7) deals, and do not provide EPS forecasts in 38 (58) deals. Compared with acquirer

[10] We collect GAAP EPS forecasts with synergy by acquirer (target) advisors in 58 (36) deals. EPS forecasts are acquirer advisors' most optimistic forecasts in 87 cases (89%) and 65 cases (83%) for targets.

advisors, target advisors are less likely to provide EPS forecasts and when they do, the forecasts are less likely to be positive.[11]

C.3. Affiliated Analysts' Recommendations

We define an analyst as affiliated if she works for the same investment bank as the financial advisors. From I/B/E/S and First Call, we obtain analyst recommendations for each acquirer firm during a period from three years before the merger announcement to the shareholder voting date. Recommendations have five levels, ranging from "1" for strong buy to "5" for sell. We compare analyst recommendation before merger announcements to those afterwards. In cases where an affiliated analyst does not issue a recommendation after the merger announcement but provides an earnings forecast, we assume she does not change her recommendation and use the most recent pre-announcement recommendation. Following Kolasinski and Kothari (2008) and Becher and Juergens (2011), we classify analysts' affiliations into three groups: acquirer-affiliated, target-affiliated, and unaffiliated by manually matching analyst employers to financial advisors.

Table I shows acquirer affiliated analysts provide significantly more favorable recommendations after merger announcements than unaffiliated analysts, but this does not appear to consistently hold for target affiliated analysts (mean is marginally significant, but no difference in medians). Among the 79 acquirer advisors' affiliated analysts that cover an acquirer pre-merger, 14 drop coverage after the announcement. Similarly, among the 54 target advisors' affiliated analysts who cover an acquirer pre-

[11]Target advisors may be less likely to provide EPS forecasts because they have no obligation to provide EPS for acquirer shareholders since they are hired by target companies.

merger, 8 stop coverage post-announcement. Since their affiliated investment banks serve as financial advisors, these analysts may choose to keep quiet rather than give pessimistic recommendations. Thus, their silence may signal poor prospects for the merger.

D. Other Firm and Deal Characteristics

Panel C of Table I details firm and deal characteristics for our sample of 136 mergers in our voting regression analyses. The average acquirer firm has a market capitalization of $4.6 billion while the average target is valued $2.3 billion. Targets in our sample are relatively large compared to the acquirers since acquirer shareholder voting is only required if more than 20% of acquirer stock is issued to pay for a merger. As a result, nearly 60% of the mergers in our sample are paid entirely with stock.[12] Next, target and acquirer firms are in the same industry in 74% of our sample deals. Such deals may be likely to have more synergies (e.g., better ability to decrease redundancies).

Similar to other studies, we find that, on average, acquirers suffer a negative market reaction at deal announcement, with an average abnormal return of -2.1% over days [-20, +1]. This variable is implemented as a measure of deal quality. Matvos and Ostrovsky (2008) find mutual funds that own both target and acquirer stocks are more likely to vote for a deal at an acquirer shareholder meeting. We calculate combined returns from the acquirer and target stocks for institutions that hold both target and acquirer stocks. The average combined returns from cross-holdings is 1.36%. On average, acquirers hold 1.7%

[12]Shareholder voting may be endogenous. If an acquirer manager is not confident of shareholder support, she may pay with cash to avoid a vote. Our focus, however, is how shareholders respond to advisor opinions rather than how shareholder voting impacts deal completion. Nevertheless, we control for relative size and stock payment in our regressions. See Hsieh and Wang (2008)for an analysis of shareholder voting on merger completion.

of target stock before deal announcements (toehold). These toeholds may impact how synergies are divided between the target and the acquirer. All variable definitions are detailed in Appendix A.

IV. Empirical Results

In this section, we examine the relation between acquirer shareholder voting and financial advisors' opinions. As noted, acquirer financial advisors and their affiliated analysts tend to provide optimistic opinions on mergers they advise. When advisors choose not to express their opinions, the absence of a positive opinion may send a negative signal. We, therefore, examine both the presence of a financial advisor opinion about a merger as well as the specific context of such opinions.[13]

A. Acquirer Shareholder Voting and Financial Advisors' Valuation of Target Firm Equity

We first examine whether the financial advisors' valuation of the target firm equity impacts how outside acquirer shareholders vote. Such valuation is routinely presented in the merger proxy statement and signals whether an advisor believes the acquirer over- or under-pays for the target. Panel A in Table II details that when the target firm advisor provides an estimation of the target equity value, the average and median increase in acquirer shareholder support for the merger equals 5.6% and 8.2%, respectively. The two

[13] Financial advisors do not appear to have policies regarding whether to provide an equity valuation opinion or a long-term earnings forecast. If an investment bank does have such policy, we would expect a discernable pattern in cases where it is involved in multiple deals. In our sample, 18 banks advised more than five deals. In all 18 cases, the bank provides valuations or earnings forecasts in some deals but not in others. No discernable factor explains the decision to provide these values.

figures have p-values of 0.02 and 0.01, respectively. When the acquirer firm advisor provides such estimation, however, the corresponding figures equal 2.6% and 0.4% and p-values are 0.24 and 0.30, respectively. The presence of a target advisors' opinion appears to have a stronger effect on shareholder voting than that of an acquirer advisor.

We next examine whether advisors' specific opinions affect shareholder voting. Panel B of Table II indicates that when the offer price falls in the lower half of target advisor's equity valuation range, i.e. the offer price is below the mid-point of the valuation range, the mean and median acquirer shareholder support for the merger increases by 8.0% and 8.5%, respectively (both have p-value of 0.05). In contrast, when the acquirer advisor presents such equity valuation, mean and median shareholder support increases by only 1.9% and 3.6%, respectively, and both figures are statistically insignificant. This evidence suggests acquirer shareholders regard the target advisor's valuation more than that of their own advisors. In addition, we find target advisors are more conservative in their valuation. In the 67 mergers where both advisors provide valuation figures, target advisors opine that the offer undervalues the target in 12 cases (18%) while acquirer advisor do so in 29 cases (43%).

We next present multivariate results in Table III, where the dependent variable is the acquirer shareholder approval rate.[14] Acquirer announcement returns, industry-adjusted ROA, relative deal size, stock payment dummy, cross-holding returns, toeholds, and same industry indicator are included as controls. In Model (1) the main independent variable is whether an advisor provides an opinion on the equity value of the target.

[14] Since the dependent variable is bounded between zero and one, we use a Tobit model in all specifications.

When the target advisor provides an estimation of target firm equity value, acquirer shareholder support for a deal increases by 4.6% (p-value 0.05). The presence of an acquirer advisor opinion on valuation, however, has no statistically significant impact on shareholder voting.

In Model (2) of Table III, we include only those cases where both the acquirer and target advisors provide a specific valuation of the target. The main independent variable in this model is the EV ratio. The results demonstrate that the acquirer shareholders' approval rate increases 3.9% (=18.85%×20.9%) when the target advisor's valuation increases by one standard deviation. The acquirer advisor's specific opinion on target valuation, however, indicates no significant impact on shareholder voting.

Finally, in Model (3), we classify advisor opinions into three categories: no opinion on valuation, equity valuation mid-point below offer price, and equity valuation mid-point above offer price, and assign each category a value of -1, 0, and 1, respectively. We then use this categorical variable as the main independent variable in Model (3). We again find that the target advisor opinion has a significant effect on how acquirer shareholders vote (p-value of 0.02), while the acquirer advisor opinion has no significant effect on shareholder voting. These results provide consistent evidence that acquirer shareholders listen to target advisors' opinions rather than those of their own advisors.

B. Acquirer Shareholder Voting and Advisors' EPS Forecasts

Financial advisors often forecast the accretion or dilution effect of a merger on acquirer firm earnings in the proxy statement of a merger. These earnings forecasts, in particular the last figure in the forecast window that is often projected into the infinite

future, may signal a merger's long-term effect on firm performance. In this section, we examine whether these earnings forecasts by financial advisors affect acquirer shareholder voting on the merger.

Panel A in Table IV details that the acquirer shareholders' approval rate increases by an average of 6.3% when the target advisor provides earnings forecasts (p-value of 0.01). The median increase is 9.2%, also statistically significant at the 1% level. In contrast, the shareholder approval rate increases by an average of 1.2% and a median of 3.7% when the acquirer advisor provides earnings forecasts, and both figures are statistically insignificant. We next divide the sample by whether the advisors present non-dilutive earnings forecasts. Panel B shows the average (median) shareholder approval rate increases by 4.5% (7.3%) if target advisors predict a deal will be non-dilutive to acquirer earnings (p-values of 0.04 and 0.03, respectively). The approval rate, however, increases only 0.1% (mean or median) if acquirer advisors predict a non-dilutive EPS, and neither is statistically significant.

These advisor earnings forecasts, however, may be correlated with the quality of a merger, which may independently impact shareholders' voting. To control for this possible confounding factor, we estimate multivariate regressions of shareholder voting in Table V. The dependent variable is the acquirer shareholder approval rate and the main independent variables are whether financial advisors provide EPS forecasts and whether they forecast earnings dilution. We include the same control variables as in Table III except for industry-adjusted ROA because ROA is closely related to earnings.

Results from Model (1) of Table V indicate that the acquirer shareholder approval rate increases by 6.8% when target advisors provide earnings forecasts (p-value below

0.01). In contrast, whether acquirer advisor provide forecasts has no significant effect on how shareholders vote. Model (2) shows that acquirer shareholder support for a merger increases by 5.1% when target advisors forecast non-dilutive earnings (p-value of 0.02). Acquirer advisors' earnings forecasts, however, again show no effect on shareholder voting. Next, we rank earnings forecasts: no forecast, dilutive forecasts, and non-dilutive forecasts. This categorical variable is the main independent variable in model (3) where results suggest again that target advisor opinions have a significant and positive effect on acquirer shareholder voting, but acquirer advisor opinions do not. In fact, the coefficient of acquirer advisor opinions is negative, though not significant, in all three models.

C. Acquirer Shareholder Voting and Affiliated Analysts' Recommendations

Next, we examine merger advisor opinions expressed via their affiliated analyst recommendation. A number of studies propose that changes in analyst recommendations are more informative. For example, Jegadeesh, Kim, Krische, and Lee (2004) find that changes in recommendations, rather than levels, have predictive power for returns while Kolasinski and Kothari (2008) suggest analyst recommendation changes convey more information than levels. Further, Becher and Juergens (2011) note that the 2002 Global Research Analyst Settlement led to rescaling of recommendation levels and focus on changes in recommendations to avoid optimism in results. Thus, we examine how acquirer shareholder voting is related to affiliated analysts' recommendation issuance, changes, and terminations. In this analysis, we focus on a sub-sample of 43 deals where both the target and acquirer advisors provide recommendations on the acquirer firm prior to the merger announcement.

Panel A in Table VI examines the certification effect of affiliated analysts' recommendations. In most cases, target and acquirer advisors continue to provide recommendation for the acquirer after the merger announcement. The mean (median) acquirer shareholders' approval rate on these deals is 10.6% (3.6%) higher than on deals where target affiliated analysts stop providing recommendations. These differences are statistically significant (both mean and median differences have p-values of 0.03) despite the small sample size. In contrast, whether or not the acquirer advisors continue to provide stock recommendation to acquirer stock has no significant effect on shareholder voting.

In Panel B, we categorize recommendation changes into two groups: (1) initiated, upgraded and maintained same recommendations and (2) recommendation downgrades and instances when analysts stop providing recommendations after the deal is announced. The results are similar to those from Panel A. When target advisors' affiliated analysts improve their recommendations, the mean and median acquirer shareholders' approval rate are 8.6% and 8.2% higher, respectively (p-value of 0.06 and 0.05). Acquirer analyst recommendations do not, however, appear to impact shareholder voting (though p-value of median is marginally significant at the 10% level). Collectively, these results suggest acquirer shareholders are less likely to listen to their own analysts, but appear to alter their voting behavior based on the recommendations of the target affiliated advisors.

We next examine the relation between shareholder voting and affiliated analysts' recommendations in a multivariate setting. Due to the small sample size, we include three controls: relative size, acquirer abnormal announcement return, and acquirer institutional

cross-holding returns.[15] In model 1 of Table VII the independent variable is whether merger advisors provide post-announcement recommendations. Results highlight that acquirer shareholder approval rates increase 11.7% when target affiliated analysts provide post-announcement recommendations on acquirers (p-value below 0.01). In contrast, the presence of an acquirer-affiliated analyst recommendation appears to have no significant effect on how shareholders vote. Similarly, Model (2) suggests that when target analysts improve their recommendations on an acquirer stock, acquirer shareholder voting increases by 9.5% (p-value of 0.02). In contrast, acquirer analyst recommendations continue to have no significant impact.

In Model (3), we segment affiliated analysts' post-announcement recommendations into five categories: one for new recommendations, two for upgrades, three for maintaining the same recommendations, four for downgrades, and five if analysts stop providing recommendations post-announcement. Acquirer shareholders' approval rate increases 4.2% when the category of target-affiliated analysts' recommendations increases one level after the merger announcement (p-value of 0.02). This result suggests that shareholders are more likely to vote for a deal when target-affiliated analysts view a deal favorably. In contrast, acquirer affiliated analyst recommendations have no significant effect on shareholder voting. These results are consistent with findings from univariate tests suggesting target-affiliated analysts' recommendations certify deal quality.

[15] Including other controls produce similar results.In additional unreported specifications, we control for target (acquirer) advisor's reputation, number of advisors, and advisor's prior business relation with the firm in all model specifications in Tables 3, 5, and 7.Results remain qualitatively the same with these controls included.

V. Additional Tests

A. Acquirer Announcement Returns and Advisors' Opinions

Prior studies as well as our results suggest that acquirer advisors are overly optimistic in their opinions to promote deal completion. To further investigate this result, we examine acquirer affiliated advisor recommendations conditional on the market reaction at the deal announcement. We expect these affiliated analysts to behave differently depending on the market reaction. Specifically, if the initial market reaction to a deal is negative, there is a greater chance the deal will fall apart (compared to a positive response). In this case, we predict that affiliated acquirer analysts should provide more positive recommendations to increase the probability of deal completion.

In untabulated tests, we document that acquirer-affiliated analysts' recommendations post-announcement are significantly more optimistic than those from unaffiliated analysts in deals where the acquirer announcement return is negative (p-value 0.01). We do not, however, find such evidence of target-affiliated analysts' post-announcement recommendations. These results indicate that acquirer advisors are more likely to provide over-optimistic opinions, particularly when market sentiment is negative.

B. Long-run Returns

In this paper, we provide evidence that shareholders are aware of the potential biases by acquirer advisors and increase their support for a merger based on certification of deal quality by target advisors and affiliated analysts. It is not clear, however, if shareholders

votes are indicative of future firm performance. We, therefore, examine whether higher shareholder support is associated with better long-term performance.

Furthermore, acquirer advisors who are overly optimistic on a merger may end up recommending deals that perform poorly in the long run. Target advisors, however, appear to be more conservative on average and may present opinions that are more likely to be in line with the long-term performance of deals. As a result, we also examine the relation between advisor opinions (target and acquirer) and the mergers' long-term returns.

B.1. Long-run Returns and Shareholder Voting

In Panel A of Table VIII, we examine acquirer long-run returns based on shareholding voting levels. In particular, we segment all deals based on whether the percentage of shareholder support on a deal is above or below the median and track each deal for 36 months after its completion to form calendar time portfolios by shareholder voting. Portfolio return regressions are run using Fama-French four factors. The regression intercepts capture the merged firms' excess performance after controlling for the market, size, growth, and momentum factors. Results indicate that all deals experience significantly positive alphas (Model 1).[16] Segmenting these into below and above median portfolios, however, we find that only those deals with above median shareholder voting (Model 3) experience significantly positive returns. These results are

[16]Several studies find negative or insignificant long-run merger returns ((Loughran and Vijh, 1997,Rau and Vermaelen, 1998, Mitchell and Stafford, 2000).However,these studies do not examine deals in the 2000s.In addition, recent studies suggest negative long-run merger returns are driven by data issues (e.g,, benchmark and endogeneity). Savor and Lu (2009) suggest stock deals create long-term value after addressing endogeneity.

consistent with the notion that acquirer shareholders tend to follow the advice of target advisors and view these opinions as deal certifications.

B.2. Long-run Returns and Advisors' Opinions

Next, in Panel B of Table VIII, we delineate deals by whether target and acquirer advisors provide favorable opinions. Specifically, we calculate an opinion index that equals the average value of the equity valuation ranking in Regression (3) of Table III and the earnings forecast ranking in Regression (3) of Table V. We do not include the affiliated analyst recommendation ranking because this variable is available for only 43 out of the 136 deals. We then form two sub-samples based on whether an advisor's opinion on a deal is above or below the median and track each deal for 36 months after its completion to form calendar time portfolios by advisor opinions. We run regressions of these portfolio returns on Fama-French four factors.[17] The regression intercepts capture the merged firms' excess performance after controlling for the market, size, growth, and momentum factors.

Panel B of Table VIII reveals that deals where acquirer advisors have a less-favorable opinion actually perform better than those deals with favorable acquirer advisor opinions. The return difference is 1.2% per month, or about 15% annually and this difference is statistically significant at the 5% level. This result suggests that acquirer advisors tend to promote deals that do not perform well in the long-run. Such evidence is consistent with our main finding that shareholder do not listen to acquirer advisors opinions and that acquirer advisors are more likely to be optimistic when the initial

[17] Our results are similar if we estimate the abnormal return with Fama-French three-factor model.

market sentiment is negative. Target advisor opinions, however, do not appear to have predictive power for long-run returns.

In sum, long-run returns are significantly positive when shareholder votes are above the median and significantly lower when acquirer advisors promote a deal. These results are consistent with our main finding that acquirer shareholders are able to discern the potential bias from their own affiliated advisors, but follow the opinions of target advisors.

C. Shareholder Voting and Advisor Retention

Our evidence suggests that acquirer shareholders on average are less likely to listen to their own financial advisors' opinions. It is nevertheless possible that in the cross section, some merger advisors may be viewed by management as being more able to "deliver" shareholder votes. Such advisors may have a better chance to secure future deals. If this is the case, acquirer advisors have yet another incentive to provide over optimistic opinions. As a result, we examine whether the percentage of shareholder support for a deal impacts the likelihood an advisor is retained in future takeovers.

Table IX examines 334 future mergers by 85 acquirers from our acquirer shareholder voting sample that made at least one acquisition within three years after a deal's effective date. We measure acquirer advisor retention based on whether the acquirer uses the same advisor in the future deal as in the previous deal. For these future deals, acquirer firms retain the same advisor in 57% of the cases when an advisor is utilized. Interestingly, acquirer shareholder approval rate is significantly related with advisor retention, even after controlling for deal quality and advisor reputation (coefficient of acquirer

shareholder approval rate is statistically significant at the 5% in all three models). Using model (3) coefficient, we estimate that a one standard deviation increase in the shareholder voting ratio increases the probability of advisor retention for future deals by about 6% (= 12.6%×0.48).

Results from our earlier tables suggest that acquirer shareholders are aware of acquirer advisors' conflicts of interest and do not alter their voting behavior based on their opinions. Managers, however, appear to believe that the merger advisors can influence shareholder votes and ultimately deal outcomes. In particular, managers are more likely to retain an advisor from a prior merger the higher the shareholder vote for this previous deal.

D. Financial Advisors' Opinions and Expected Probability of Merger Completion

As previously detailed, financial advisors typically receive the bulk of their fees conditional upon merger completion. These advisors, therefore, may have stronger incentives to promote merger completion if they believe that the deal may not be completed. Similarly, if ex ante shareholder support for a deal is high, e.g. when management stock ownership is high, financial advisors may not need to provide over-optimistic opinions to persuade shareholders. In this situation, the management also may not need to hire financial advisors with the most optimistic opinions. As a result, the opinions of financial advisors may be related to the ex-ante expected probability of merger completion.

To address this potential endogenous issue, using a sample of 564 deals from 2000 to 2006, we estimate a model of the probability of merger completion similar to that of

Bates, Becher, and Lemmon (2008).[18] The dependent variable of the regression is a binary variable for merger completion. The independent variables include toehold, target termination fee, cash payment, relative size, hostility, horizontal merger and tender offer dummies, and acquirer managerial and institutional ownership. We next estimate the correlation between the expected probabilityof merger completion and the advisor opinion variables. If lower ex ante expected probability of merger completion leads to more optimistic financial advisor opinions, we expect a negative correlation between the expected probability and the opinion variables. Overall, 12 out of 14 correlation estimates are statistically insignificant, and one is positive with a p-value of 0.09. The expected probability of completion is negatively correlated with only one of the 14 variables (acquirer advisor's analyst recommendation) with a p-value of 0.08.[19] This evidence suggests that, in our sample, the financial advisor opinion is not endogenously determined by the expected probability of merger completion.

VI. Conclusions

Voting on mergers and acquisitions is arguably one of the most important corporate decisions shareholders have to make. Whether this shareholder decision is influenced by the opinions of the financial advisors has important consequence for shareholder wealth

[18] The number of observation in this analysis is higher because we do not require voting and financial advisor data.From the financial advisor's point of view, they are also likely to consider all available mergers in estimating the probability of completion of the deal they advise.

[19] This negative coefficient is consistent with results in Section 4.4.1 that acquirer advisor's affiliated analysts are more likely to issue optimistic recommendation when announcement returns are negative for acquirers.

and the effectiveness of regulatory oversight. Further, previous studies demonstrate that shareholders, on average, experience significant losses when a firm undertakes an acquisition while the merger advisors stand to gain substantial fees when a deal is closed. The apparent conflict of interest between the merger advisors and the shareholders prompt us to examine the relation between acquirer shareholder voting and financial advisor opinions.

It is possible that shareholders listen to financial advisors' opinions regardless of the potential conflict of interest and are more likely to support a deal when the merger opinion is more favorable. Alternatively, shareholders may not value their financial advisors' opinions and no relation will exist between shareholder voting and financial advisor opinions. Finally, it is plausible that acquirer shareholders are able to recognize the more severe conflict of interest of their own advisors but are more willing to follow the opinions of target advisors.

Our principal result is that acquirer shareholders apparently are able to see through their own financial advisors' conflicts of interest and do not alter their voting decisions based on these opinions. These results hold for valuation of target equity, long-term earnings forecasts, or affiliated analyst recommendations. Acquirer shareholders, however, do appear to listen to the opinions of target financial advisors. These results support the active listener hypothesisinthat acquirer shareholders appear more likely to consider less over-optimistic opinions when making their voting decisions. Our evidence has important implications for shareholder wealth and potential regulatory reforms.

Table I
Descriptive Statistics

This table reports descriptive statistics for a sample of 136 mergers announced from 2000 to 2006 with acquirer shareholding voting. Panel A provides details on voting characteristics obtained from Institutional Shareholder Services (ISS) Voting Analytics database, 8-k filings, Factiva News, merger proxy filings, and others. Panel B details financial advisors' and analysts' opinions (equity valuation, earnings per share forecasts, and recommendations). Panel C includes variables of firm and deal characteristics from Securities Data Corporation (SDC) merger and acquisition (M&A) database as well as from the Center for Research in Security Prices (CRSP). Continuous variables in Panel C arewinsorized at the 1% and 99% levels and all variables are defined in Appendix A.

Panel A: Acquirer shareholder voting (%)	**N**	**Mean**	**Q1**	**Median**	**Q3**	**StdDev**
Management voting rights (%)	136	11.23	2.59	6.67	13.62	14.24
Advisor-affiliated institutional voting rights (%)	136	1.02	0.00	0.08	1.33	2.07
Acquirer shareholder approval rate (%)	136	63.21	54.97	64.99	71.62	12.57

Panel B: Financial advisor's opinions							
Advisors' equity valuation ratios (%)	**N**	**Mean**	**Q1**	**Median**	**Q3**	**StdDev**	**Percent**
(1) Target advisors	97	-7.22	-20.32	-9.03	-0.78	20.90	23.71
(2) Acquirer advisors	83	2.94	-6.37	-0.55	7.91	26.08	49.43
Difference (1) – (2)	67	-10.17		-8.48			-25.72
p-value of difference		**<0.01**		**<0.01**			**<0.01**

# deals with advisors' EPS forecasts	**Non dilutive**	**Dilutive**	**No forecasts**
Target advisors	71	7	58
Acquirer advisors	88	10	38

# deals with analysts' recommendations	**Initiate**	**Update**	**Drop**
Target-affiliated analysts	2	46	8
Acquirer-affiliated analysts	2	65	14
Unaffiliated analysts	2	121	3

Table I (continued)
Descriptive Statistics

Analysts' post-announcement recommendations	**N**	**Mean**	**Q1**	**Median**	**Q3**	**StdDev**
(1) Target-affiliated analysts	48	2.19	2.00	2.00	3.00	0.77
(2) Acquirer-affiliated analysts	67	2.12	1.75	2.00	3.00	0.73
(3) Unaffiliated analysts	123	2.48	2.00	2.50	3.00	0.76
Difference (1) – (3)	48	-0.20		-0.07		
p-value of difference		**0.08**		0.16		
Difference (2) – (3)	68	-0.32		-0.20		
p-value of difference		**<0.01**		**0.08**		

Panel C: Other firm and deal characteristics	**N**	**Mean**	**Q1**	**Median**	**Q3**	**StdDev**
Acquirer firm size ($ millions)	136	4,649	143	371	1,470	16,832
Target firm size ($ millions)	107	2,319	103	229	1,089	7,204
Deal Value ($ millions)	136	2,494	86	207	1,243	8,250
Relative size (%)	136	79.61	38.68	61.25	93.82	93.49
Percentage with pure stock payment (%)	136	59.45	n.a.	n.a.	n.a.	n.a.
Acquirer announcement return (%)	136	-2.08	-6.97	-0.95	4.89	12.08
Acquirer industry-adjusted ROA (%)	136	0.58	-1.37	-0.13	5.29	15.52
Toehold (%)	136	1.72	0.00	0.00	0.00	9.60
Acquirer institutional cross-holding return (%)	136	1.36	-0.25	0.00	2.53	6.06
Percentage within same industry (%)	136	73.65	n.a.	n.a.	n.a.	n.a.

Table II
Acquirer Shareholder Approval Rate and Advisors' Target Equity Value Estimations

This table details univariate analysis of 136 mergers when both acquirer and target firms hire financial advisors and focuses on equity value estimations. Panel A analyzes all 136 mergers where both acquirer and target firms hire financial advisors. Panel B examines the subset of 67 deals where both advisors provide equity value (EV) estimations in the merger proxy statements for the target firm. All variables are defined in Appendix A. Statistical significances of differences between mean (median) values are determined by t-tests (Wilcoxon tests). p-values are reported in parentheses.

Acquirer Shareholder Approval Rate (%)					
Panel A: Whether advisors provide EV estimations					
		All	Provide (1)	Do not provide (2)	Difference (1) - (2)
Target Advisors	Mean	63.21	64.82	59.19	5.63 (**0.02**)
	Median	64.99	67.27	59.10	8.17 (**0.01**)
	N	136	97	39	
Acquirer advisors	Mean	63.21	64.21	61.64	2.57 (0.24)
	Median	64.99	65.22	64.82	0.40 (0.30)
	N	136	83	53	
Panel B: Whether advisors provide positive EVratios					
		All	Positive (1)	Negative (2)	Difference (1) - (2)
Target Advisors	Mean	65.72	72.29	64.28	8.01 (**0.05**)
	Median	67.59	73.35	64.83	8.52 (**0.05**)
	N	67	12	55	
Acquirer advisors	Mean	65.72	66.83	64.88	1.95 (0.56)
	Median	67.59	69.16	65.61	3.55 (0.24)
	N	67	29	38	

Table III
Multivariate Tests of Acquirer Shareholder Approval Rate and Advisors' Target Equity Value Estimations

This table details the impact of financial advisors' equity value estimates on acquirer shareholder approval rates for 136 mergers when both acquirer and target firms hire financial advisors. Model 1 and Model 3 examine all 136 deals while Model 2 examines 67 deals where both advisors provide equity value (EV) estimations for the target. Continuous control variables are winsorized at the 1% and 99% levels and all variables are defined in Appendix A. p-values are in parentheses.

Dependent Variable: Acquirer Shareholder Approval Rate (%)			
	Model 1	Model 2	Model 3
Intercept	61.10	75.86	64.61
	(0.00)	(0.00)	(0.00)
Target advisors provide EV estimations	4.57		
	(0.05)		
Target advisors'estimated EV ratios		18.85	
		(0.03)	
Rankings of target advisors' EV estimations			3.67
			(0.02)
Acquirer advisors provide EV estimations	-0.56		
	(0.80)		
Acquirer advisors' estimated EV ratios		-0.08	
		(0.99)	
Rankings of acquirer advisors'EV estimations			0.28
			(0.83)
Acquirer announcement return (%)	0.11	0.28	0.10
	(0.23)	**(0.07)**	(0.25)
Acquirer industry adjusted ROA (%)	0.23	0.20	0.24
	(0.00)	(0.16)	**(0.00)**
Relative size (%)	0.00	-0.04	0.00
	(0.95)	(0.27)	(0.92)
Stock payment dummy	-1.66	-5.64	-1.96
	(0.45)	**(0.08)**	(0.37)

Acquirer institutional cross-holding return (%)	0.18	-0.36	0.15
	(0.31)	(0.17)	(0.40)
Toehold (%)	0.03	-0.08	0.04
	(0.76)	(0.67)	(0.70)
Same industry dummy	-0.19	-3.16	0.21
	(0.94)	(0.37)	(0.93)
Number of observations	136	67	136
p-value of chi square test	0.01	0.16	0.01

Table IV
Univariate Tests of Acquirer Shareholder Approval Rate and Advisors' EPS Forecasts

This table details univariate analysis of 136 mergers when both acquirer and target firms hire financial advisors. Panel A tests whether the existence of EPS forecasts detailed in the merger proxy impact acquirer shareholder approval rates while Panel B examines the direction of these EPS forecasts. All variables are defined in Appendix A. Statistical significances of differences between mean (median) values are determined by t-tests (Wilcoxon tests). p-values are reported in parentheses.

Acquirer Shareholder Approval Rate (%)

Panel A: Whether Advisors Provide EPS Forecasts

		All Cases	ProvideEPS Forecasts (1)	Do not Provide EPS Forecasts (2)	Difference(p-value) (1) - (2)
Target advisors	Mean	63.21	65.91	59.57	6.34 **(<0.01)**
	Median	64.99	67.59	58.37	9.22 **(<0.01)**
	N	136	78	58	
Acquirer advisors	Mean	63.21	63.54	62.36	1.18 (0.63)
	Median	64.99	65.38	61.68	3.70 (0.51)
	N	136	98	38	

Panel B: Whether Advisors Provide Non-dilutive EPS Forecasts

		AllCases	Non-dilutiveEPS Forecasts (1)	Dilutive orNoEPS (2)	Difference(p-value) (1) - (2)
Target advisors	Mean	63.21	65.37	60.84	4.53**(0.04)**
	Median	64.99	67.40	60.07	7.33 **(0.03)**
	N	136	71	65	
Acquirer advisors	Mean	63.21	63.23	63.17	0.06 (0.98)
	Median	64.99	64.99	64.91	0.08(0.83)
	N	136	88	48	

Table V
Multivariate Tests of Acquirer Shareholder Approval Rate and Advisors' EPS Forecasts

This table details the impact of financial advisors' EPS forecasts on acquirer shareholder approval rates for 136 mergers when both acquirer and target firms hire financial advisors. The dependent variable in all three models is the shareholder approval rate. The main independent variable in Model 1 is a binary variable whether advisors provide EPS forecasts; in Model 2 it represents whether advisors provide non-dilutive EPS forecasts; in Model 3 it equals to one of three advisors' EPS forecasts categories: do not provide EPS forecasts, provide dilutive EPS forecasts, and provide non-dilutive EPS forecasts. Continuous control variables are winsorized at the 1% level and all variables are defined in Appendix A. p-values are reported in parentheses.

Dependent Variable: Acquirer Shareholder Approval Rate (%)			
	Model 1	Model 2	Model 3
Intercept	61.51	63.57	65.40
	(0.00)	(0.00)	(0.00)
Target advisors provide EPS forecasts	6.83		
	(**0.00**)		
Target advisors provide non-dilutive EPS forecasts		5.09	
		(**0.02**)	
Rankings of target advisors' EPS forecasts			3.12
			(**0.00**)
Acquirer advisors provide EPS forecasts	-0.30		
	(0.90)		
Acquirer advisors provide non-dilutive EPS forecasts		-0.33	
		(0.88)	
Rankings of acquirer advisors' EPS forecasts			-0.13
			(0.91)
Acquirer announcement return (%)	0.10	0.11	0.11
	(0.26)	(0.22)	(0.24)
Relative size (%)	0.01	0.01	0.01
	(0.69)	(0.81)	(0.74)
Stock payment dummy	-2.86	-3.00	-2.98
	(0.20)	(0.19)	(0.18)
Acquirer institutional cross-holding return (%)	0.18	0.18	0.18

	(0.29)	(0.32)	(0.31)
Toehold (%)	0.09	0.07	0.08
	(0.44)	(0.57)	(0.48)
Same industry dummy	-1.54	-2.10	-1.86
	(0.52)	(0.38)	(0.44)
Number of observations	136	136	136
p-value of chi square test	0.07	0.24	0.12

Table VI
Univariate Tests of Acquirer Shareholder Approval Rate and Advisor Affiliated Analysts' Recommendations

This table details univariate statistics for 43 deals where both acquirer- and target-affiliated analysts' recommendation changes around the deal announcement can be identified. Panel A examines whether acquirer shareholder approval rates are higher when affiliated analysts provide acquirer recommendations after deal announcement while Panel B tests whether approval rates are impacted when affiliated analysts improve their recommendations. All variables are defined in Appendix A. Statistical significances of differences between mean (median) values are determined by t-tests (Wilcoxon tests). p-values are reported in parentheses.

Acquirer Shareholder Approval Rate (%)

Panel A: Whether affiliated analysts provide recommendations

		All Cases	Provide Recommendations (1)	Do not Provide Recommendations (2)	Difference (p-value) (1) - (2)
Target-affiliated	Mean	69.45	70.93	60.35	10.58 (**0.03**)
Analysts	Median	70.43	73.49	59.85	3.64 **(0.03**)
	N	43	37	6	
Acquirer-affiliated	Mean	69.45	69.75	65.49	4.26 (0.53)
Analysts	Median	70.43	71.34	69.49	1.85 (0.55)
	N	43	40	3	

Panel B: Whether affiliated analysts improve recommendations

		All Cases	Improve Recommendations (1)	Do not Improve Recommendations (2)	Difference (p-value) (1) - (2)
Target-affiliated	Mean	69.45	70.86	62.22	8.64 (**0.06**)
Analysts	Median	70.43	72.88	64.66	8.22 (**0.05**)
	N	43	36	7	
Acquirer-affiliated	Mean	69.45	70.81	63.53	7.28 (0.27)
Analysts	Median	70.43	73.49	64.02	9.47 (**0.10**)
	N	43	35	8	

Table VII

Multivariate Tests of Acquirer Shareholder Approval Rate and Affiliated Analysts' Recommendations

This table details analysis of 43 deals where both acquirer- and target-affiliated analysts provide recommendation for acquirer stock around the deal announcement. Model 1 examines whether acquirer shareholder approval rates increase when affiliated analysts provide acquirer recommendations after deal announcement. Model 2 tests whether approval rates are impacted when affiliated analysts improve their recommendations while Model 3 measures whether approval rates are impacted by *ranked* affiliated analysts' recommendation changes, where ranks based on five categories: initiate, upgrade, keep the same, downgrade, and drop. Continuous variables are winsorized at the 1% and 99% levels and all variables are defined in Appendix A. p-values are reported in parentheses.

Dependent Variable: Acquirer Shareholder Approval Rate (%)			
	Model 1	Model 2	Model 3
Intercept	55.07 (0.00)	58.82 (0.00)	91.87 (0.00)
Target-affiliated analysts provide recommendations	11.69 (**0.00**)		
Target-affiliated analysts improve recommendations		9.46 (**0.02**)	
Rankings of target-affiliated analysts' recommendations			-4.18 (**0.02**)
Acquirer-affiliated analysts provide recommendations	5.01 (0.38)		
Acquirer-affiliated analysts improve recommendations		4.33 (0.26)	
Rankings of acquirer-affiliated analysts' recommendations			-2.74 (0.14)
Acquirer announcement return (%)	0.18 (0.17)	0.14 (0.29)	0.25 (0.07)
Relative size	-0.01 (0.78)	-0.01 (0.59)	-0.01 (0.73)
Acquirer institutional cross-holding return (%)	0.46	0.41	0.35

	(**0.01**)	(**0.01**)	(**0.03**)
Number of observations	43	43	43
p-value of chi square test	0.01	0.01	0.01

Table VIII
Long-run Acquirer Returns

This table details long-run returns over three years for our sample acquirer firms. Value-weighted portfolios are formed in calendar time each month from 2000 to 2009 based on shareholder voting (Panel A), and advisor opinions (Panel B). In Panel A, results are detailed for all acquirers (Model 1), acquirers with lower-than-median shareholder approval rate (Model 2); and acquirers with higher-than-median shareholder approval (Model 3). In Panel B, we split the sample by whether the advisor opinion index based on EV and EPS rankings is above or below the median (for acquirer and target advisors, respectively). Portfolio returns in months with fewer than five acquirers are excluded for all models. Portfolio excess returns are regressed on the Fama-French factors and the monthly momentum factor as follows:

$$R_{pt} - R_{ft} = a_p + b_p(R_{mt} - R_{ft}) + s_p SMB_t + h_p HML_t + m_p MOM_t + e_{pt}$$

Where(R_{pt} - R_{ft}) is the excess return of the portfolio; (R_{mt} - R_{ft}) is the excess return of the market, $SMB_t$is the size factor.HML_t is the book-to-market factor, and MOM_t is the momentum factor. Monthly stock returns are obtained from CRSP while market excess return, SMB, HML, and momentum factor are all from Kenneth R. French's website. p-values are in parentheses.

Panel A: Long-run Acquirer Returns by Shareholder Voting

	Full SamplePortfolio Model 1	Low VotingPortfolio Model 2	High VotingPortfolio Model 3
Intercept	1.15	0.85	0.86
	(0.01)	(0.22)	**(0.01)**
R_m_R_f	0.66	0.73	0.48
	(0.00)	**(0.00)**	**(0.00)**
SMB	0.22	0.20	0.36
	(0.23)	(0.50)	**(0.02)**
HML	-0.25	0.24	-0.01
	(0.16)	(0.41)	(0.97)
MOM	-0.36	-0.63	-0.10
	(0.00)	**(0.00)**	(0.27)
Number of observations	84	84	84

Adjusted R^2	0.53	0.40	0.43

Panel B: Long-run Acquirer Returns by Advisor Opinions

	Non-favorable opinions (1)	Favorable opinions (2)	Excess Returns (2) – (1)
Acquirer advisor opinion			
Intercept	1.33	0.12	-1.21
	(0.01)	(0.75)	**(0.03)**
$R_m\_R_f$	0.92	0.60	-0.32
	(0.00)	**(0.00)**	**(0.04)**
SMB	0.14	0.22	0.08
	(0.49)	(0.19)	(0.73)
HML	-0.43	0.71	1.14
	(0.03)	**(0.00)**	**(0.00)**
MOM	-0.32	-0.04	0.28
	(0.01)	(0.68)	**(0.05)**
Number of observations	86	86	86
Adjusted R^2	0.59	0.51	0.31
Target advisor opinion			
Intercept	1.40	0.76	-0.63
	(0.01)	**(0.05)**	(0.39)
$R_m\_R_f$	1.19	0.45	-0.74
	(0.00)	**(0.00)**	**(0.00)**
SMB	0.39	0.21	-0.18
	(0.10)	(0.19)	(0.57)
HML	-0.54	0.22	0.77

	(0.02)	(0.15)	**(0.01)**
MOM	-0.20	-0.20	0.00
	(0.17)	**(0.04)**	(0.98)
Number of observations	86	86	86
Adjusted R^2	0.59	0.39	0.21

Table IX
Acquirer Shareholder Approval Rate and Acquirer Advisor Retention

This table includes 334 future transactions by 85 acquirers from our main sample. Acquirers' future transactions are collected over the three years after deal completion from SDC. The dependent variable equals one if an acquirer advisor is retained in a future deal, and zero otherwise. Continuous variables are winsorized at the 1% and 99% levels and all independent variables are defined in Appendix A. p-values are in parentheses. Marginal effects, in square brackets, represent the change in the retention probability of the acquirer advisor for an independent variable to increase by one, holding all other independent variables constant at mean values.

Dependent Variable: Acquirer Advisor Retention			
	Model 1	Model 2	Model 3
Intercept	-3.40	-1.98	-3.83
	(0.00)	(0.00)	(0.00)
Acquirer shareholder approval rate	3.22	2.75	3.53
	(0.01)	**(0.03)**	**(0.02)**
	[0.39]	[0.33]	[0.48]
Acquirer announcement return (%)		2.46	0.87
		(0.19)	(0.67)
		[0.30]	[0.12]
Acquirer advisors' future reputation		-0.01	-0.02
		(0.76)	(0.00)
		[-0.00]	[-0.20]
Future transaction relative size (%)			2.50
			(0.01)
			[0.34]
Number of observations	334	334	232
p-value of chi square test	0.00	0.03	0.06

CHAPTER II: Stock Price Idiosyncratic Information and Merger Investment Decisions

I. Introduction

Managers and investors both acquire and use firm-specific information in their decision making. Traditionally, researchers assume that managers, as insiders, possess all firm-specific information, outside investors do not. The set of information that investors possess is a subset of managers' overall information set. Managers' private firm-specific information is conveyed to outside investors through announcements of corporate events, such as earnings announcements, changes in dividend policy, changes in leverage, and announcements of capital investments, including mergers and acquisitions. This is the basis for models of information asymmetry and signaling.

Recent studies suggest that managers do not possess all firm-specific information. Investors can acquire private firm-specific information that is outside the information set of managers. Investors can have access to information sources not available to managers and/or possess superior skills in analyzing and interpreting information.[20] Given their professional expertise and unique talents, investors can collect, analyze, and interpret firm-related information, and create their own private firm-specific information. Chen, Goldstein, and Jiang (2007) suggest that "This information is more likely to be about the demand for the firm's products or about strategic issues, such as competition with other firms" [p. 620].

[20] For example, even with the same set of data, different researchers may come up with different arguments. Depending on their academic background, some may end up with publishable papers, but the others may not be able to get their work published.

Investor's private firm-specific information is conveyed to managers through the channel of stock prices. Informed traders trade on their private firm-specific information when the benefit of trading on that information is greater than the cost of collecting and analyzing that information (Grossman and Stiglitz, 1980; McNichols and Trueman, 1993; Bris, Goetzmann, and Zhu, 2007). Through this informed trading, investor's private firm-specific information is impounded into stock price as idiosyncratic information. A growing body of research finds that managerial decisions rely in part on information conveyed bystock prices (Dow and Gorton, 1997; Wurgler, 2000; Durnev, Morck, and Yeung, 2004; Luo, 2005; Chen, Goldstein, and Jiang, 2007; Kau, Linck, and Rubin, 2008; Bakke and Whited, 2010).The use of idiosyncratic information by managers in their merger and acquisition decisions is the focus of this study. I define stock price idiosyncratic information (SPII) as the private information of informed traders about firm fundamentals and growth opportunities that is impounded into stock prices via informed trading.

SPII is impounded into stock prices to the extent that the marginal benefit of trading on SPII is equal to the marginal cost of this information. Because of differences in the cost of acquiring and analyzing information and the differences in transaction costs in trading securities, SPII differs across firms, industries, and countries. The quantity and quality of information in stock prices is also determined by the attention the stock receives from investors. Foucault and Gehrig (2008) present a theoretical model in which cross-listing increases the number of informed traders and thus increases the precision of the information in stock prices about the value of the firm's growth opportunities. The

empirical evidence that cross-listing increases SPII is provided by Fernandes and Ferreira (2008). Ferreira and Laux (2007) show corporate governance, such as opening to the takeover market, increases SPII by encouraging information collection and trading. Morck et al. (2000) show countries with stronger property rights have higher SPII.

SPII can improve capital investment efficiency. Dow and Gorton (1997) present a model in which, when managers are given the right incentives, stock price would guide managers' investment decisions in that it provides managers with investors' private information regarding future development opportunities. On the country level, Wurgler (2000) finds that, in financial markets with higher SPII, managers increase investment more in growing industries and less in declining industries. He argues higher SPII enables managers distinguish between good and bad investment through more accurate measures of Q. On the industry level, Durnev, Morck, and Yeung (2004) find a positive relation between industry value-weighted SPII and the investment efficiency, measured by the absolute deviation of industry marginal q from one. On the firm level, Chen, Goldstein, and Jiang (2007) present empirical evidence that SPII provides managers new information about firm fundamentals that managers consider in their investment decisions.

Previous studies focus on the relation between SPII and the efficiency of internal capital investment. My paper considers external investments through mergers and acquisitions. Major firm expansions are generally accomplished through mergers and acquisitions rather than through internal capital investments (Jovanovic and Rousseau, 2002). Andrade and Stafford (2004) find that both mergers and internal capital investments are responsive to the firm's growth opportunities as measured by q. I

examine whether SPII provides managers new information about the value of growth opportunities and thus improve merger investment decisions. This is my learning hypothesis.

The argument that managers learn from the market in making merger investment decisions has been supported by evidence in recent studies. Kau, Linck, and Rubin (2008) find a positive correlation between merger completion probability and the acquiring firm's announcement period stock return, indicating that acquirer managers decide to finally complete a deal when the market's valuation of the acquirer's merger gain is higher. Studying friendly-negotiated mergers only, Luo (2005) show a positively relation between merger completion probability and the combined merger announcement return, indicating managers learn from the market new information about deal valuation. Different from these studies that examine manager learning after merger announcement, I study whether managers learn useful information from the stock market before a merger is announced.

Both merger investment and internal capital investment expand the asset base and productive capacity in firms requiring additional capacity due to growth in demand (Gort, 1969; Andrade and Stafford, 2004). Jovanovic and Rousseau (2002) theoretically model the relation between the value of growth opportunities (measured by q) and the decision to expand production capacity through merger investment and internal investment. They demonstrate empirically that both investments are positively related to q. Further, because of higher fixed cost, they find merger investment is more sensitive to q. Chen et al. (2007) and Foucault and Fresard (2010) indicate SPII increases the accuracy of q and

consequently managers are more sensitive to q when making internal investment decisions. I hypothesize if SPII provides managers new information about the value of growth opportunities, SPII would increase the merger investment sensitivity to q.

Second, I examine the relation between SPII and merger efficiency. I use two measures of merger efficiency- (1)acquirer announcement period stock return; (2) combined announcement period stock return of acquiring and target firms; (3) change in post-merger return-on-assets (ROA). Prior studies show SPII increases internal investment efficiency because it provides managers with more precise information about the value of growth opportunities (Wurgler, 2000;Durnev et al., 2004; Foucault and Gehrig, 2008). Because merger efficiency increases with the value of growth opportunities (Jovanovic and Rousseau, 2002), I hypothesize acquirer SPII increases acquirer merger gains and total merger gains. Moreover, Devos, Kadapakkam, and Krishnamurthy (2009) find more than 80% of merger synergies come from operating synergies. If managers have a better understanding of firm fundamentals, they are better able to assess operating synergies created by the merger, which leads to higher merger gains. I expect, therefore, SPII would increase merged firm operating performance.

Next, I examine what firm characteristics motivate mangers to learn useful information from SPII. I hypothesize that SPII is more likely to increase merger efficiency when the acquirer has more development opportunities, when the acquirer management has higher skills, and/or when the acquirer corporate governance is stronger. When the acquirer has more development opportunities, managers are more likely to use SPII to identify the best merger candidate for higher merger efficiency. I use Tobin's q to

measure growth opportunities. I hypothesize acquirer SPII is more likely positively related with merger efficiency when acquirer Tobin's q is higher. Lang, Stulz, and Walkling (1989) argue high q can be driven by management skill. Managers with higher skills are more able to use SPII to identify good merger opportunities and thus to create higher merger efficiency. I expect, therefore, acquirer SPII more likely increases merger efficiency when the acquirer management has higher skills.

I hypothesize that SPII increases merger investment efficiency in firms with stronger monitoring. Agency theory argues that managers make corporate decisions to promote their own interests (Jensen, 1976). Kau et al. (2008) find that managers are more likely to learn from the market in making merger consummation decisions when they are under stricter governance. Blockholders have the incentive to monitor management decisions (Shleifer and Vishney, 1986; Shivdasani, 1993; Denis and Serrano, 1996). I hypothesize, when acquirer blockholder ownership is higher, SPII is more likely positively related with merger efficiency.

The key variable in my study is acquirer SPII. Previous studies suggest stock price non-synchronicity can measure SPII. Examining the relation between R^2 and the release of public firm-specific information, Roll (1988) suggests the stock price change that cannot be explained by the market return or public firm-specific information may reflect investors' private firm-specific information. Durnev, Morck, Yeung, and Zarowin (2003) show, when stock price non-synchronicity is higher, stock price is more predictive of future earnings, indicating stock price non-synchronicity is positively associated with investors' private firm-specific information. Empirical studies on SPII and investment

efficiency, such as Morck, Yeung, and Yu (2000), Ferreira and Laux (2007), and Fernandes and Ferreira (2008) use stock price non-synchronicity to measure SPII. Following these studies, I use the stock price non-synchronicity from the market model controlling for industry return during one year before deal announcement to measure the pre-announcement SPII.

My sample includes 2,018 major merger transactions announced during the period from 1990 to 2006. I find acquirer SPII increases the sensitivity of merger investment to Tobin's q, consistent with my learning hypothesis. In addition, acquirer SPII increases acquirer announcement return, combined announcement return, long-term abnormal return, and post-merger operating performance.[21] These results support the hypothesis that SPII helps managers identify good merger investment opportunities. Furthermore, the positive relation between acquirer SPII and acquirer merger gains is mainly driven by the subsample where the acquirer has higher q or higher blockholder ownership. These results suggest managers are more efficient in learning investors' private firm-specific information when the acquirer has more development opportunities, when the acquirer management skill is higher, and/or when managers are under stricter monitoring.

In robustness tests, I show some evidence that some of my results still hold with the use of different measures of SPII, including the non-synchronicity from the model controlling for Fama-French factors and the accounting measure of SPII in Durnev et al.

[21]Campbell et al. (1997) argues that price non-synchronicity is important in event studies. The statistical significance of abnormal event-related returns is determined by the stock return non-synchronicity relative to the market or industry return volatility. Stocks with high non-synchronicity are more likely detected of abnormal returns. However, we consider this would only increase the dispersion of abnormal returns if the SPII does not improve merger decisions.

(2003). My results do not hold when I measure SPII with the ($1-R^2$) in Chen et al. (2007) or the PIN number in Easley, Hvidkjaer, and O'Hara (2002). I consider this could be because of the data limitation.[22]I use the 2-SLS regressions to control the endogeneity of SPII. I choose firm age and high-tech industry dummy as instrumental variables that are related with SPII but not related with acquirer merger gains. I find SPII still significantly increases acquirer merger gains. Last, but not the least, SPII may improve merger decisions because of enhanced corporate monitoring (Defond and Hung, 2004; Diamond and Verrecchia, 1982; Holmström and Tirole, 1993). I do not exclude this monitoring hypothesis but argue that manager learning from the stock market can be one of the reasons that SPII is associated with merger investment decisions.

My study contributes to the literature that managers learn useful information from the stock market in making corporate decisions. Jegadeesh, Weinstein, and Welch (1993), Giammarino, Heinkel, Hollifield, and Li (2004), Luo (2005), and Kau et al. (2008) show evidence that managers learn new information from the stock market in making SEO and merger completion decisions. My paper extends these studies by showing that managers also learn from the stock market in making merger investment decisions. My study also contributes to the literature that the stock market efficiency improves investment decisions. Previous studies show SPII increases internal investment only (Morck et al.,

[22]Durnev et al. (2004) comment that ($1-R^2$) has the econometrically undesirable characteristic of being bounded within the unit interval. We consider this could be the main reason for insignificant results. The PIN number is collected from Dr. Søren Hvidkjaer's website. This annual PIN number is based on every calendar year until 2001. Less than half of our sample has matched PIN's. Firm characteristics show these observations are not representative of the whole sample.

2000; Durnev et al., 2004; Chen et al., 2007). This paper shows that external investment through merger transactions is also related with SPII.

The remainder of the paper is organized as follows. Section 2 presents the data and sample collection. Section 3 explains my research methodology and empirical results. Section 4 discusses additional tests. And Section 5 concludes.

II. Data and Sample Collection

A. Measure Stock Price Idiosyncratic Information (SPII)

I define SPII as the informed traders' private information about firm fundamentals and development opportunities that is impounded into stock price via informed trading. Because of costly information, informed traders must get compensated for their information collecting and analyzing. Grossman and Stiglitz (1980), McNichols and Trueman (1993), and Foucault and Gehrig (2008) theoretically demonstrate that SPII decreases with information collection cost and increases with the number of informed traders and the amount of information that informed traders have. Morck et al. (2000), Ferreira and Laux (2007), Fernandes and Ferreira (2008), provide empirical evidence that SPII differs because of information cost.

Roll (1988) examines to what degree stock price changes can be attributed to firm-specific news. He finds that the systematic risk explained by the market model is quite modest. Further, the R^2 in the censored samples excluding dates when firm-specific news are publicly released into the market does not increase significantly. He, therefore, suggests, "The financial press misses a great deal of relevant information generated

privately" [p.564]. However, he acknowledges that another explanation may also be possible – "(the existence of) occasional frenzy unrelated to concrete information" [p.566]. Following studies provide evidence that stock price non-synchronicity reflects idiosyncratic information about firm fundamentals rather than market noise.

Durnev et al. (2003) show that stock price non-synchronicity is positively related with accounting measure of SPII, defined as the extent to which stock price contains information about future earnings. As idiosyncratic information is impounded into stock prices through informed trading, other studies show that stock price non-synchronicity increases with profit and decreases with the cost of informed trading. Morck et al. (2000) show countries with poor protection of private property rights have lower stock price non-synchronicity. They argue the informed trading is more costly and unattractive when political events and rumors would easily cause market-wide stock price swings, which decreases stock price non-synchronicity. Ferreira and Laux (2007) argue that anti-takeover provisions reduce stock price non-synchronicity because these provisions decrease the profit from anticipating a potential bidding offer.

Following Durnev et al., (2004), Ferreira and Laux (2007), Fernandes and Ferreira (2008), and Morck et al., (2000), I use stock price non-synchronicity to measure SPII. It equals $\ln\left(\frac{1-R_i^2}{R_i^2}\right)$, where R^2 is from the market model regression (1) controlling for industry value-weighted return during the period (-295, -43) before the deal

announcement.[23]I only keep the non-synchronicity when there are more than 100 daily stock return observations.

$$R_{it} - R_{ft} = \alpha + \beta * (R_{mt} - R_{ft}) + \gamma * (R_{jt} - R_{ft}) + \varepsilon_{it} \quad (1)$$[24]

R_{it} is firm i's stock return, R_{mt} is market value-weighted return, R_{jt} is industry value-weighted return, and R_{ft} is the risk-free return.I define industries by 3-digit SIC codes.

Table 1 shows that the mean and median acquirer SPII are 2.26 and 2.04, respectively. Since idiosyncratic risk equals $\ln\left(\frac{1-R_i^2}{R_i^2}\right)$, the average R^2 is about 10%, which is smaller than 17% in Chen et al. (2007). It indicates that the market model explains less stock price movements in acquirer firms than in other non-acquiring firms, suggesting that acquirer stock price may has more idiosyncratic information.

B. Sample Selection

I select merger transactions from SDC that are disclosed value mergers and acquisitions (M&A), leveraged buyouts, tender offers, and exchange offers. I require that the pre-merger acquirer ownership in the target is less than 50%, the merger transaction involves transfer of control, and the deal value is at least $10 million. Considering that financial firms and utility firms have very different characteristics in information disclosure and industry regulation, I exclude these firms from my sample. I also require

[23] Schwert (1996) presents evidence of merger-related information leakage from 42 days before deal announcement. Our calculation period for non-synchronicity, therefore, ends at 43 days before deal announcement.

[24] As Morck (2000) claim, although this equation is a classical asset pricing equation, we do not pursue the asset pricing interpretation of the tradeoff between risk and return; instead, we treat is as an application of Grossman (1976) and Roll's (1988) approach to information capitalization.

that the merger is either completed or withdrawn. During the period from 1990 to 2006, I collect 2,482 merger transactions from SDC database. Among these merger transactions, I delete those where the merging firms have the same PERMNO's from CRSP and where the acquirer does not have enough stock return data to calculate non-synchronicity. My final sample contains 2,018 mergers and acquisitions announced from 1990 to 2006.

Panel B in Table 1 presents the dependent variables of merger investment decisions. Following Jovanovic and Rousseau (2002), I define merger investment as deal value divided by book value of assets at the end of previous fiscal year.[25] It measures relative merger spending in a firm. This measure is similar to that in Chen et al. (2007), who use the capital expenditure scaled by beginning-of-year assets to measure firm capital investment. Acquirer merger investment has the mean of 1.14 and the median of 0.39, which is significantly larger than capital investment spending (Chen et al., 2007). This is reasonable since the main corporate expansion is through mergers and acquisitions (Jovanovic and Rousseau, 2002).

I use acquirer announcement return and combined announcement return to measure acquirer merger performance at around merger announcement.[26] Following Luo (2005), I calculate acquirer announcement return as the accumulated abnormal return during (-1,

[25] According to the definition in SDC, deal value is the total value of consideration paid by the acquirer, excluding fees and expenses. The dollar value includes the amount paid for all common stock, common stock equivalents, preferred stock, debt, options, assets, warrants, and stake purchases made within six months of the announcement date of the transaction.

[26] The definition of SPII is based on the weaker version of capital market efficiency (Jensen, 1978). In analyzing the event study methodology in this weaker form market efficiency, Fama (1991) argues "with respect to firm-specific events, the adjustment of stock prices to new information is efficient" [p.1602].

+7) around deal announcement. Acquirer announcement return is significantly lower than zero with the mean and median of -1.80% and -1.28%, respectively, indicating that market reacts negatively to the overall merger proposals. The acquirer announcement return for pure cash paid deals has the mean and median of 1.4% and 1.1%, respectively. The negatively announcement return, therefore, is mainly driven by equity-paid deals, which is consistent with the overvalued equity literature (Shleifer and Vishny, 2003; Dierkens, 1991).

I calculate combined merger return as the value-weighted acquirer and target announcement return, where target announcement return equals the accumulated abnormal return during (-43, +7) around deal announcement that includes the period of target stock price run-up (Schwert, 1996). I use acquirer and target firm market capitalization at 2 and 44 days before deal announcement as the weight. Panel B in Table 2 shows that the average combined merger return is statistically positive, indicating that merger transactions create value but mainly accrues to the target shareholders (Eckbo, 2009). Following Harford (2005) and Chen et al. (2007), I use the post-merger ROA growth to measure change in combined firm operating performance. Panel B in Table 1 shows that the post-merger ROA growth is negative, which suggests that merger transactions do not improve combined firm performance.

Panel C in Table 1 shows the statistics for control variables. Managerial private firm-specific information is related with merger transactions (Shleifer and Vishny, 2003). Following Chen et al. (2007), I use the average of absolute abnormal return (-1, +1) at around the previous four quarterly earnings announcements before the deal

announcement to measure asymmetric information. Acquirer asymmetric information has the mean and median of 0.03 and 0.02, respectively. This is smaller than those in Chen et al. (2007). Given that my sample period covers more recent years, it indicates that acquirer firms have lower information asymmetry as well as the firms in recent years have lower information asymmetry. This is consistent with Campbell, Lettau, Malkiel, and Xu (2001) who suggests that the firm-specific information impounded into stock price is increasing over the years.

The acquirer firm has on average higher return-on-equity and Tobin's q than the target, suggesting that merger investment facilitates resource reallocation to more efficient use (Gort, 1969; Jovanovic and Rousseau, 2002; Mitchell and Mulherin, 1996; Harford, 2005). The average acquirer cash holding is 0.18, which is higher than 0.12 in average firms (Chen et al., 2007), indicating that managers in firms with more cash flows are more likely to make merger transactions. Merger relative size has the mean of 0.44 and the median of 0.22, suggesting that the sample merger transactions are important corporate investment decisions that managers make. Other deal characteristic variables show that most of my sample merger transactions are friendly negotiated deals that reach mutual agreement at deal completion.

III. Empirical Results

In this section, I analyze empirical test results. Section 3.1 examines the relation between SPII and the sensitivity of merger investment on the value of growth opportunities measured by q. Section 3.2 shows the impact of acquirer SPII on acquirer

and total merger returns. Section 3.3 presents the manager's learning efficiency depending on the management skills and informed shareholders.

A. SPII and Merger Investment Sensitivity to Q

Chen et al. (2007) find SPII increases the internal investment sensitivity to q. They attribute this relation to the fact that SPII provides managers with new information about the value of investment opportunities. Foucault and Fresard (2010) find internal investment sensitivity to q increases after cross-listing, indicating that cross-listing increases the new information about the value of growth opportunities. Jovanovic and Rousseau (2002) shows that merger investment is also sensitive to q. Following these studies, I set up the following regression to test whether SPII increases merger investment sensitivity to q.

$$MI_i = \alpha + \beta * IDIO_i * Q_i + \gamma * Q_i + \varepsilon * IDIO_i + \tau * IA_i * Q_i + \chi * IA_i + \varepsilon_{it} \quad (2)$$

For the acquirer firm *i*, MI_i is its merger investment, $IDIO_i$ is SPII, and Q_i is Tobin's Q. Since merger investment can be initiated by managers' private information about equity misevaluation (Shleifer and Vishny, 2003), I include IA_i to control for the asymmetric information. If SPII increases merger investment sensitivity to q, β should be positive and statistically significant.

In Table 2, Model (1) shows that acquirer SPII increases merger investment sensitivity to q. The coefficient is 0.10, with the p-value less than 0.01. This is consistent with my learning hypothesis that managers are more likely to take out merger investment

when they learn more information about the value of growth opportunities from stock price. I find, however, q is not statistically related with merger investment, indicating that merger investment can be initiated by reasons other than growth opportunities, such as overvalued equity (Shleifer and Vishny, 2003), managerial hubris (Roll, 1986), and empire building (Jensen, 1986). Since overvalued equity links merger investment with stock price that is included in calculation of q, I find acquirer asymmetric information increases the sensitivity of merger investment to q, indicating that managers are more likely to initiate merger investment when they observe overvalued equity.

Given both SPII and asymmetric information increase merger investment sensitivity to q, I further use the subsamples of cash and stock deals to examine whether these relations are driven by the same reason. In Model (2) I include mergers paid with cash only, I find the SPII still increases the sensitivity of merger investment to q but asymmetric information does not do so. The coefficients of the interaction term of SPII and acquirer q is 0.12, with the p-value less than 0.01. The coefficients of the interaction term of asymmetric information and acquirer q is 1.30, but the p-value is 0.57.

In Model (3), I include stock paid deals only. Both SPII and asymmetric information increases acquirer merger investment sensitivity to q. Therefore, asymmetric information increases merger investment when stock price is high only in stock paid deals, consistent with the overvalued equity motivation. Since firms with more growth opportunities tend to use stock payment for future investment flexibility (Myers, 1977; Martin, 1996), the fact that SPII also increases merger investment sensitivity to q in stock payment mergers is consistent with my learning hypothesis.

B. SPII and Acquirer Merger Performance

When managers engage in internal investment to seize growth opportunities, SPII increases investment efficiency because it provides managers with more information about the value of growth opportunities (Morck et al., 2000; Durnev et al., 2004; Chen et al., 2007; Foucault and Gehrig, 2008). When managers learn from the stock market the value of growth opportunities in making merger investment decisions, SPII should also increases acquirer and total merger gains.

The definition of SPII is based on the weaker version of capital market efficiency (Jensen, 1978). In analyzing the event study methodology in this weaker form market efficiency, Fama (1991) argues "with respect to firm-specific events, the adjustment of stock prices to new information is efficient" [p.1602]. I use acquirer announcement return, combined announcement return, and post-merger operating performance to measure acquirer gains from the merger and set up the following regressions.

$$ACAR_i = \alpha + \beta * IDIO_i + \gamma * IA_i + \tau * ACQ_{control} + \eta * Deal_{control} + \varepsilon_i \quad (3)$$

$$CCAR_i = \alpha + \beta * IDIO_i + \gamma * IA_i + \tau * ACQ_{control} + \delta * TGT_{control} + \eta * Deal_{control} + \varepsilon_i \quad (4)$$

$$ROAG_i = \alpha + \beta * IDIO_i + \gamma * IA_i + \tau * ACQ_{control} + \delta * TGT_{control} + \eta * Deal_{control} + \varepsilon_i \quad (5)$$

For the acquirer firm *i*, $ACAR_i$ is acquirer abnormal merger announcement return, $CCAR_i$ is combined abnormal merger announcement return, and $ROAG_i$ is the average acquirer ROA growth over three years after deal completion. $IDIO_i$ is SPII, IA_i is asymmetric information, and $ACQ_{control}$, $TGT_{control}$, and $Deal_{control}$ are controls for acquirer,

target and deal characteristics, respectively. If SPII improves acquirer merger gains, the β's in these regressions should be positive and statistically significant.

Deal characteristics affect merger returns. Managers of large firms are more likely overconfident and overpay (Roll, 1986). The relative size is another control for the size effect. Empirical studies find mixed results that acquirer return can be positively or negatively related with relative size (Moeller Schilingemann, and Stulz, 2004; Loughran and Vijh, 1997). Managers in firms with better pre-merger performance, measured by return-on-equity ratio and q, may have higher management skills that improve merger decisions. Managers at firms with more free cash flows are more likely to undertake merger transactions for empire building(Jensen, 1986).High leverage ratio reduces future free cash flows and thus limits managerial corporate decisions for empire building(Maloney, McCormick, and Mitchell, 1993).

Deal characteristics affect merger returns. Stock payment decreases acquirer return because it signals overvalued equity (Myers and Majluf, 1984). Compared to friendly-negotiated mergers, tender offers are more likely driven by merger synergy, which increases merger return (Bradley, Desai, and Kim, 1983). Hostile takeover is an important method of correcting managerial failure (Rappaport,1990). Choi (1991) argues that toehold investment facilitates value-enhancing takeovers. Diversification may decrease merger returns because of the diversification discount (Morck, Shleifer, and Vishny, 1990; Campa and Kedia, 2002).

Table 3 shows the results of acquirer SPII on acquirer merger gains. The dependent variable in Model (1) is acquirer announcement return. The data shows acquirer SPII significantly increases acquirer announcement return, with the coefficient of 0.65andthep-value of 0.02. It suggests that more information about the value of growth opportunities increases acquirer shareholder gain from the merger investment. Acquirer information asymmetry is negative but not significant. In unreported tests, I find acquirer information asymmetry decreases acquirer announcement return in stock payment deals, indicating that shareholders' perception of overvalued equity increases when managers with more private information pay for the target with acquirer equity. In stock payment deals, however, acquirer SPII still increases acquirer announcement return.

The dependent variable in Model (2) is combined merger return. The coefficient of acquirer SPII is 0.71, statistically significant at the 3% level, indicating that SPII informs managers of more information about the value of growth opportunities so that it facilitates managers to find the best merger candidate for higher merger synergies. Acquirer firm size decreases merger returns, consistent with hubris hypothesis (Roll, 1986). Relative size has mixed results on merger returns, consistent with the previous literature that it has a mixed effect on merger returns (Moeller et al., 2004; Loughran and Vijh, 1997). Acquirer cash holding decreases merger returns, consistent with the agency theory of free cash flow (Jensen, 1986). Deal completion increases merger returns, which is consistent with the argument that the announcement return includes the information about merger completion expectation (Luo, 2005). Acquirer Tobin's q increases merger return, indicating that mergers create transaction through resource reallocation to more

efficient use (Lang et al., 1989; Jovanovic and Rousseau, 2002). Stock payment dummy decreases merger returns, indicating overvalued equity (Myers and Majluf, 1984).

Devos et al. (2009)argue that most merger synergies come from operating synergies. Chen et al. (2007) suggest that the information managers learn from the market may be more likely about the information about the demands of the firm products or about competition with other firms. Therefore, I test whether SPII improves combined firm operating performance measured by ROA growth. The result shows that post-merger ROA growth is positively related with acquirer pre-merger SPII. The coefficient is 0.11, with the p-value of 0.03.Acquirer information asymmetry increases sales growth, indicating that to purchase assets with overvalued equity increases firm performance in the long run (Savor and Lu, 2009). Overall, the results in Table 3 support the argument that SPII increases acquirer and total merger gains.

Studies on firm long-run performance indicate that the market may not fully reflect the information about a certain corporate event. Following Mitchell and Stafford (2000) and Harford (2005), I use the calendar portfolio approach to study the combined firm long-run performance.[27] First, I compose two portfolios of acquirer firms depending on whether the acquirer firm has higher- or lower-than-median SPII. Each acquirer is included in either portfolio from one month after deal effective date until three years afterwards. Then, every month, I calculate the one month value-weighted return for the

[27]This methodology does not suffer from problems such as the positive cross-correlations in bidding firms, the transaction cost in rebalancing strategy, and the assumed unchanging firm risk as in the methodology of calculating buy-and-hold returns and forming event-time portfolios.

portfolio. I keep the portfolio return only if the portfolio includes more than five acquirer firms. Third, each vector of one-month portfolio returns is regressed on the monthly Fama-French factor realizations. A significant intercept shows the portfolio abnormal long-run return. Similar to Harford (2005), I also regress the return of the portfolio including all acquirers on Fama-French factor realizations and a dummy variable of higher idiosyncratic information. The positive coefficient of the dummy variable indicates that acquirer SPII increases long-run return. The following equations show the portfolio return regressions.

$$R_{pt} - R_{ft} = \alpha + \beta * \left(R_{mt} - R_{ft}\right) + \chi * SMB_t + \delta * HML_t + \lambda * MOM_t + \varepsilon_{pt} \quad (6)$$

$$R_{pt} - R_{ft} = a_p + \beta * D\_IDIO + \lambda * \left(R_{mt} - R_{ft}\right) + \gamma * SMB_t + \delta * HML_t + \nu * MOM_t + \varepsilon_{pt} \quad (7)$$

$(R_{pt} - R_{ft})$ is the excess return of the portfolio. *D_IDIO* is a dummy variable that the acquirer has higher-than-median SPII. $(R_{mt} - R_{ft})$ is the excess return of the market. SMB_t is the average return on the three small portfolios minus the average return on the three big portfolios. HML_t is the average return on the two value portfolios minus the average return on the two growth portfolios, and MOM_t is the monthly momentum factor. I expect the α in equation (6) and the β in equation (7) are positively significant.

Table 4 Model (1) includes the subsample where acquirer firms have higher-than-median SPII. The statistically significant intercept of 0.99 indicates the acquirer firms with higher pre-merger SPII earn positive long-run returns over three years after deal completion. Model (2) also shows that acquirer firms with low SPII gain positive long-

run returns. The intercept is 0.72, with the p-value less than 0.01. To further examine whether the long-run returns in the two subsamples are statistically different, I add in Model (3) a dummy variable of higher-than-median SPII. The data shows that the coefficient of this dummy variable is 0.54, with the p-value of 0.04. Therefore, acquirer firms with high SPII win higher long-run abnormal returns. My results suggest that acquirer merger performance in the long run is also positively related with its SPII.

C. Manager Learning Efficiency

C.1. Manager Learning Efficiency by q

Tobin's q has been used in studies as a measure of management capability and/or growth opportunities (Lang et al., 1989; Servaes, 1991).In Table 5, I run the regressions of acquirer merger performance on acquirer SPII in each subsample classified by the sample median Tobin's q. Model (1) and Model (2) show that acquirer announcement return is positively related with SPII when acquirer Tobin's q is high. The coefficient in Model (1) is 1.12, with the p-value of 0.01. The coefficient in Model (2) is 0.20, with the p-value of 0.61. Model (3) and Model (4) show that merger combined return is positively related with SPII only when acquirer Tobin's q is high. The coefficient in Model (3) is 1.11, with the p-value of 0.02. The coefficient in Model (4) is 0.51, with the p-value of 0.27. In Model (5) and Model (6), the results show that only when the acquirer firm has higher-than-median q, acquirer SPII increases post-merger ROA growth. The coefficient of acquirer SPII is 1.46 and the p-value is 0.09 when acquirer q is higher. On the other hand, when acquirer q is lower, the coefficient of acquirer SPII is not statistically significant. Overall, in Table 5, I find some evidence that acquirer SPII is more closely

related with acquirer merger performance when acquirer Tobin's q is high. The results support the hypothesis that manager learning is more efficient when the firm has more growth opportunities and/or higher management skills.

C.2. Manager Learning Efficiency by Blockholder Ownership

Table 6 tests whether managers can more efficiently learn from the stock market when blockholder ownership is high. Model (1) includes the subsample where the acquirer blockholder ownership is higher than the sample median. The coefficient of acquirer firm-specific information is 0.97, significant at the 2% level. In Model (2), when acquirer has lower blockholder ownership, the coefficient of acquirer SPII loses significance. Acquirer SPII, therefore, increases acquirer announcement return only when blockholder ownership is high. Models (3) and (4) show that, only when acquirer blockholder ownership is higher than sample median, acquirer SPII increases combined merger return. The coefficient in Model 3 is 1.10, with the p-value of 0.03. The coefficient in Model 4 is 0.27, with the p-value of 0.55. Models (5) and (6) confirm that acquirer SPII significantly improves post-merger operating performance when the acquirer has high blockholder ownership. The coefficient is 1.49, with the p-value of 0.04. All these results provide supportive evidence that acquirer managers are more likely to learn SPII when they can identify informed blockholders for their SPII or when the firm is under stricter monitoring.

IV. Additional Tests

A. Other Measures of SPII

Fama and French (1993) find that stock return is related with size and equity valuation. In addition, Jegadeesh and Titman (1993) argue that stock return is also related with the momentum factor. I, therefore, include these factors in the market model regression and define idiosyncratic information as the stock price non-synchronicity from the model. Panel A in Table 7 shows that SPII increases acquirer and combined merger announcement return with this measure. Durnev et al., (2004) argue that the non-synchronicity is the logistic transformation of $(1-R^2)$. Chen et al. (2007) directly use $(1-R^2)$ to measure of SPII. Panel B and Panel C, however, do not show that SPII increases acquirer merger performance when measured with $(1-R^2)$. Durnev et al. (2004) comment that (1-R2) has the econometrically undesirable characteristic of being bounded within the unit interval.It indicates that the bounded nature of $(1-R^2)$ may reduce the statistical results.

Another measure is the probability of informed trading (PIN). Easley and O'Hara (1992) propose a market microstructure model explaining that trading process contains more information than individual transactions. Following a series of theoretical and empirical studies, the authors empirically estimate PIN for each NYSE-listed stock from 1983 to 1998. With the PIN data from Søren Hvidkjaer's website, I present the regression results in Panel D of Table 8. The results are not significant. Because of the limited data, I only have 814 acquirer firms have the PIN number matched. Comparing firm characteristics, I find that acquirers with PIN number have larger firm sizes, higher

return-on-equity, lower Tobin's q, higher leverage ratio, and less cash holdings. Therefore, the subsample with PIN number cannot represent the whole sample, which may cause different results.

The third measure for SPII is the accounting measure of stock price informativeness. Durnev et al. (2003) argue that stock prices are more informative of firm-specific information when they are more predictable of future earnings. Similar to their methodology but focusing on each individual firm, I use the residual from the regression of stock return on future earnings to measure investor's firm-specific information. The larger the residual, the less is SPII. The data in Panel E shows that acquirer idiosyncratic information is positively related with acquirer merger performance, but the coefficient is significant only in the combined return regression.

Overall, when I use other measures, I still find some evidence that acquirer SPII is positively related with acquirer merger performance.

B. Control for Endogeneity of SPII

SPII is not exogenous. Dow, Goldstein, and Guembel (2010) theoretically demonstrate that the incentive to produce information about firms' development opportunities increases when these opportunities are ex-ante more profitable. That is, when investors expect that managers would make profitable merger transactions, they have the incentive to collect the idiosyncratic information. The relation between SPII and acquirer merger performance, therefore, may not be because the managers learn from the

market but because of the market expectation effect. To address this issue, I employ a 2SLS model that controls for the endogeneity of SPII.

In the first regression, I use the acquirer SPII as the dependent variable and use instrument variables that are related with SPII but are unlikely related with expected merger returns. I select the firm age and high-tech dummy as the instrument variables. The market less likely know much about firms just listed, the value of the idiosyncratic information, therefore, is higher. This may increase informed investors' incentive to collect and trade the idiosyncratic information. On the other hand, firm age is not related with merger returns. Firm age, therefore is one of the instrument variables. Luo (2005) argue that investors of high-tech firms are less likely to have idiosyncratic information because the managers possess the professional knowledge that is the key to firm competitiveness and performance. High-tech industry dummy, however, is less likely related with merger returns. It is another instrument variable. Further, to confirm that these two variables are not related with merger returns, I include them in the unreported merger return regressions and none of them is significant.

Table 8 shows, in the first step regression, acquirer SPII is negatively related with firm age and high-tech dummy. The coefficient of acquirer firm age is -0.14, significant at the 1% level. The coefficient of acquirer high-tech dummy is -0.55, significant at the 1% level. The results suggest that investors have more incentive to collect and analyze idiosyncratic information for younger firms and non-hightech firms, which is consistent with my expectation. In the second step regressions, I test whether the residual SPII is still positively related with acquirer merger performance.

Panel B in Table 8 shows that acquirer SPII increases acquirer and combined merger returns. In Model (1) where the dependent variable is acquirer announcement return, the coefficient of SPII is 0.60, with the p-value of 0.03. In Model (2) where the dependent variable is combined announcement return, the coefficient of SPII is 0.66, with the p-value of 0.03. So, even after controlling for the endogeneity issue, acquirer SPII still increases acquirer merger performance at around merger announcement. Model (3) uses the acquirer sales growth as the dependent variable. The coefficient of acquirer SPII is 0.88, with p-value of 0.06. Overall, the results in Model (3) suggest that my main results are not solely driven by the endogeneity issue of SPII.

V. Conclusions

SPII is positively related with investment efficiency because it provides manager with new information about the value of growth opportunities (Wurgler, 2000; Durnev et al., 2004; Chen et al., 2007). Mergers and acquisitions, one of the most important corporate investment decisions, are also positively related with the value of growth opportunities (Jovanovic and Rousseau, 2002). This paper examines whether SPII is related with merger investment decisions. Specifically, I ask whether managers learn the value of growth opportunities from the SPII, whether manager learning increases shareholder value, and what factors are associated with the manager learning efficiency.

Following Durnev et al. (2004), Ferreira and Laux (2007), Fernandes and Ferreira (2008), and Morck et al. (2000), I use stock price non-synchronicity to measure SPII. In a sample of 2,018major merger transactions announced from 1990 to 2006, I find that acquirer SPII is positively related with merger investment sensitivity to q. It increases

acquirer and combined merger announcement returns. It also improves acquirer firm operating performance and long-run returns. These results support my manager learning hypothesis.

Further, I examine the factors that are related with manager learning efficiency. I find the relation between SPII and acquirer merger performance is mainly driven by the acquirers with high Tobin's q, indicating that managers are more likely to learn the information from the stock market in making merger decisions when they are more capable to identify a good merger candidate or when the firm has high growth opportunities. The relation between SPII and acquirer merger performance is mainly driven by the acquirers with high blockholder ownership, indicating that managers are more likely to learn the information from the stock market in making merger decisions when they are under stricter monitoring. In addition, my results are robust to the endogeneity of SPII.

This paper contributes to the learning literature in mergers and acquisitions. Luo (2005) and Kau et al. (2008) argue that managers listen to the market in deal completion decisions. Different from their studies, I provide evidence that managers learn from the market even before a deal is announced. This paper also contributes to the literature that SPII is associated with specific corporate decisions. Previous studies find that SPII improves internal capital investment efficiencies (Chen et al., 2007; Durnev et al., 2004; Wurgler, 2000). My paper, focusing on the external investment – mergers and acquisitions, presents evidence that it also improves merger investment decisions.

Table I Summary Statistics

The sample includes 2,018 mergers announced from 1990 to 2006. Panel A reports the statistics of acquirer SPII. Panel B details the merger investment and three acquirer merger performance variables. Panel C states the control variables for firm and deal characteristics. All continuous variables are winsorized at 1% and 99%. All variables are defined in Appendix A.

Variable	N	Mean	Q1	Median	Q3	Std
Panel A: Information Variables						
Acquirer SPII	2,018	2.26	1.29	2.04	3.01	1.32
Panel B: Dependent Variables						
Acquirer merger investment	1,997	1.14	0.13	0.39	1.08	2.31
Acquirer announcement return (%)	2,018	-1.80	-7.54	-1.28	4.47	10.95
Combined announcement return (%)	2,018	2.64	-3.25	2.59	8.76	11.55
Post-merger ROA growth (%)	1,987	-4.07	-6.15	-1.13	1.45	16.88
Panel C: Control Variables						
Acquirer asymmetric information	1,911	0.03	0.01	0.02	0.03	0.02
Acquirer firm size ($mil)	2,018	12,015	331	1,423	6,429	31,466
Acquirer return-on-equity	1,996	0.05	0.03	0.13	0.22	0.43
Acquirer cash holdings	2,003	0.18	0.03	0.09	0.28	0.21
Acquirer debt-to-equity	1,997	1.29	0.45	0.98	1.69	1.94
Acquirer MTB ratio	1,976	4.59	1.92	3.09	5.23	5.67
Acquirer Tobin's Q	1,977	2.77	1.42	1.98	3.06	2.41
Acquirer blockholder ownership	1,972	0.14	0.05	0.12	0.22	0.13
Target return-on-equity	1,657	-0.05	-0.16	0.07	0.17	0.64
Target debt-to-equity	1,657	1.52	0.32	0.78	1.77	3.56
Target Tobin's Q	1,636	2.32	1.20	1.60	2.58	2.13
Relative size	2,018	0.44	0.07	0.22	0.62	0.57
Friendly deal	2,018	0.95	1.00	1.00	1.00	0.21
Same industry dummy	2,018	0.62	0.00	1.00	1.00	0.49
Tender offer	2,018	0.19	0.00	0.00	0.00	0.40
Toehold	2,018	0.04	0.00	0.00	0.00	0.21
Deal completion	2,018	0.88	1.00	1.00	1.00	0.32
Stock payment dummy	2,018	0.42	0.00	0.00	1.00	0.49

TableII SPII and Merger Investment Sensitivity to Q

This table studies the relation between merger investment and acquirer SPII. Model (1) includes the whole sample of 2,018 major merger transactions announced from 1990 to 2006. Model (2) includes pure cash payment deals. Model (3) includes pure stock payment deals. Continuous variables are winsorized at 1% and 99%. All variables are defined in Appendix A. p-values are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1% level, respectively.

Dependent Variable: Merger Investment			
	Whole Sample (1)	Cash Mergers (2)	Stock Mergers (3)
Intercept	0.31	0.09	0.11
	(0.61)	(0.93)	(0.94)
Acquirer Q * acquirer SPII	**0.10*****	**0.12*****	**0.11*****
	(0.00)	**(0.00)**	**(0.00)**
Acquirer Q	0.00	-0.07	0.01
	(0.91)	(0.41)	(0.86)
Acquirer idiosyncratic information	0.02	0.03	-0.06
	(0.76)	(0.76)	(0.62)
Acquirer Q * acquirer asymmetric information	5.87***	1.30	4.48***
	(0.00)	(0.57)	(0.00)
Acquirer asymmetric information	-1.78	7.47	2.42
	(0.66)	(0.34)	(0.76)
Year fixed effect	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Number of observations	1,890	469	778
Adjusted R^2	0.30	0.28	0.27

Table III
Multivariate Tests of Acquirer Merger Performance and SPII

This table shows how acquirer stock price idiosyncratic information is related with acquirer merger performance. The dependent variables in model (1), (2), and (3) are acquirer announcement return, combined announcement return, and post-merger ROA growth, respectively. There are 2,018 merger transactions during the period from 1990 to 2006 in models (1) and (2). Model (3) includes 1,785 completed transactions from the whole sample. Continuous variables are winsorized at 1% and 99%. All variables are defined in Appendix A. p-values are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

Dependent Variable:	Acquirer Announcement Return	Combined Announcement Return	Post-merger ROA Growth
	(1)	(2)	(3)
Intercept	3.65	7.35	-20.26*
	(0.48)	(0.20)	(0.05)
Acquirer SPII	**0.65****	**0.71****	**0.11****
	(0.02)	**(0.03)**	**(0.03)**
Acquirer information asymmetry	-5.29	15.88	-26.58
	(0.76)	(0.42)	(0.41)
Log of acquirer firm size	-0.23	-0.50**	0.49
	(0.27)	(0.03)	(0.18)
Acquirer return-on-equity	1.29*	2.66***	
	(0.06)	(0.00)	
Acquirer cash holdings	-6.85***	-7.24***	-1.10
	(0.00)	(0.00)	(0.71)
Acquirer debt-to-equity	-0.01	-0.33*	0.47
	(0.92)	(0.05)	(0.11)
Acquirer Tobin's Q	0.02	-0.06	-0.59***
	(0.88)	(0.70)	(0.01)
Relative size	-2.23***	3.04***	-0.25
	(0.00)	(0.00)	(0.81)
Target return-on-equity		0.90*	
		(0.07)	
Target debt-to-equity		-0.08	0.04

		(0.36)	(0.29)
Target Tobin's Q		0.18	-1.33***
		(0.26)	(0.00)
Friendly deal	-0.96	-1.83	0.74
	(0.46)	(0.20)	(0.82)
Same industry dummy	0.61	0.55	0.45
	(0.27)	(0.39)	(0.66)
Tender offer	1.07	0.62	0.52
	(0.13)	(0.49)	(0.72)
Toehold	0.52	-0.42	0.91
	(0.68)	(0.77)	(0.71)
Deal completion	2.28**	3.19***	
	(0.01)	(0.00)	
Stock payment dummy	-2.73***	-3.59***	-0.10
	(0.00)	(0.00)	(0.93)
Year fixed effect	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Number of observations	1,875	1,522	1,328
Adjusted R^2	0.10	0.14	0.15

Table IV Long-run Acquirer Returns and SPII

This table shows the calendar time-based regressions of long-run acquirer returns. In 1,785 completed merger transactions in my sample, Model 1 includes the acquirers with higher-than-median idiosyncratic information, while Model 2 includes the acquirers with lower-than-median idiosyncratic information. In Model 3,I include all the completed merger transactions but use the dummy variable whether the acquirer has high-than-median idiosyncratic information. Each month, I form a portfolio consisting of at least 5 acquirers. An acquirer is included from deal completion until 3 years afterwards. The vector of the monthly value-weighted portfolio returns are regressed on the monthly factor realizations of the Fama-French (1993) factors.

$$R_{pt} - R_{ft} = a_p + b_p\left(R_{mt} - R_{ft}\right) + s_p SMB_t + h_p HML_t + m_p MOM_t + e_{pt},$$

where(R_{pt} - R_{ft}) is the excess return of the portfolio; (R_{mt} - R_{ft}) is the excess return of the market, SMB_t is the average return on the three small portfolios minus the average return on the three big portfolios. HML_t is the average return on the two value portfolios minus the average return on the two growth portfolios, and MOM_t is the monthly momentum factor. The monthly stock returns are from CRSP while the monthly market excess returns, SMB, HML, and momentum factors are from the website of Kenneth R. French. p-values are in parentheses.*, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

Acquirer SPII in the Portfolio	High	Low	Full Sample
	(1)	(2)	(3)
Intercept	0.99***	0.72***	0.58***
	(0.00)	(0.00)	(0.00)
Acquirer high SPII dummy			**0.54****
			(0.04)
R_m - R_f	0.88***	1.02***	0.95***
	(0.00)	(0.00)	(0.00)
SMB	0.12*	-0.24***	-0.06
	(0.05)	(0.00)	(0.15)
HML	0.20**	-0.41***	-0.10**
	(0.01)	(0.00)	(0.04)
Number of observations	196	197	393
Adjusted R^2	0.58	0.86	0.69

Table V
Multivariate Tests of Acquirer Merger Performance and SPII by Acquirer Tobin's Q

This tablefurtherexaminestheresultsinTable3 that whether the relation between acquirer SPII and acquirer merger performance is mainly driven by the subsample when acquirers have higher-than-median Tobin's q. In each pair of regressions that have the same dependent variable, I do the regressions in the subsample where the acquirer has higher- or lower-than-median Tobin's q, respectively. The dependent variables in models (1) and (2), (3) and (4), and (5) and (6) are acquirer announcement return, combined announcement return, and post-merger ROA growth, respectively. Models (1), (3), and (5) have acquirers with higher Tobin's q and models (2), (4), and (6) have acquirers with lower Tobin's q. Continuous variables are winsorized at 1% and 99%. All variables are defined in Appendix A. p-values are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

Dependent Variable	Acquirer Announcement Return		Combined Announcement Return		Post-merger ROA Growth	
by acquirer Tobin's q	High	Low	High	Low	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-8.21	15.04**	3.04	13.85*	-26.37	-13.29
	(0.29)	(0.04)	(0.72)	(0.10)	(0.13)	(0.30)
Acquirer SPII	**1.12*** **	0.20	**1.11** **	0.51	**1.46***	0.79
	(0.01)	(0.61)	**(0.02)**	(0.27)	**(0.09)**	(0.22)
Acquirer information asymmetry	-15.53	-2.06	21.45	10.90	-13.10	-29.09
	(0.51)	(0.94)	(0.43)	(0.73)	(0.79)	(0.53)
Log of acquirer firm size	0.04	-0.61*	-0.30	-0.49	0.28	0.92*
	(0.89)	(0.06)	(0.38)	(0.18)	(0.63)	(0.08)
Acquirer return-on-equity	1.49	0.39	1.86*	3.75***		
	(0.11)	(0.71)	(0.08)	(0.01)		
Acquirer cash holdings	-4.44**	-10.01***	-5.74**	-7.66**	-10.26	13.43***
	(0.04)	(0.00)	(0.02)	(0.02)	(0.02)	(0.00)
Acquirer debt-to-equity	-0.13	0.11	-0.52*	-0.16	0.61	0.56
	(0.62)	(0.56)	(0.07)	(0.49)	(0.23)	(0.12)
Acquirer Tobin's Q	-0.09	0.12	-0.19	-1.92	-0.35	-5.73***

	(0.58)	(0.93)	(0.29)	(0.20)	(0.26)	(0.00)
Relative size	-4.27***	-1.66**	2.26**	3.33***	-0.11	-0.50
	(0.00)	(0.02)	(0.05)	(0.00)	(0.96)	(0.68)
Target return-on-equity			1.90***	0.18		
			(0.01)	(0.81)		
Target debt-to-equity			-0.02	-0.10	0.52**	0.16
			(0.90)	(0.37)	(0.04)	(0.34)
Target Tobin's Q			0.39**	-0.99**	-1.20***	-1.96***
			(0.03)	(0.02)	(0.00)	(0.00)
Friendly deal	0.75	-1.77	-0.94	-2.01	-0.06	1.99
	(0.75)	(0.27)	(0.71)	(0.26)	(0.99)	(0.56)
Same industry dummy	0.27	0.49	0.93	-0.28	0.42	0.65
	(0.75)	(0.52)	(0.33)	(0.76)	(0.81)	(0.62)
Tender offer	1.93*	0.72	1.44	-0.06	2.96	-0.67
	(0.09)	(0.45)	(0.29)	(0.96)	(0.22)	(0.70)
Toehold	1.47	0.68	0.72	-0.47	3.16	-0.06
	(0.47)	(0.69)	(0.74)	(0.82)	(0.42)	(0.99)
Deal completion	0.44	3.23***	1.21	3.89***		
	(0.76)	(0.01)	(0.43)	(0.00)		
Stock payment dummy	-1.86**	-3.28***	-3.38***	-3.50***	2.65	-2.92*
	(0.05)	(0.00)	(0.00)	(0.00)	(0.16)	(0.04)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	935	940	760	762	678	650
Adjusted R^2	0.14	0.13	0.16	0.21	0.21	0.15

Table VI
Multivariate Tests of Acquirer Merger Performance and SPIIbyBlockholderOwnership

With the same setting with Table 5, this table studies whether the relation between acquirer stock price idiosyncratic information and acquirer merger performance is driven by the subsample where acquirers have higher-than-median blockholder ownership. The dependent variables in models (1) and (2), (3) and (4), and (5) and (6) are acquirer announcement return, combined announcement return, and post-merger ROA growth, respectively. Models (1), (3), and (5) have acquirers with higher blockholder ownership and models (2), (4), and (6) have acquirers with lower blockholder ownership. Continuous variables are winsorized at 1% and 99%. All variables are defined in Appendix A. p-values are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

Dependent Variable:	Acquirer Announcement Return		Combined Announcement Return		Post-merger ROA Growth	
By acquirer blockholder ownership	High	Low	High	Low	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	14.17	-1.20	9.42	8.88	-14.13	-13.64
	(0.10)	(0.87)	(0.32)	(0.25)	(0.39)	(0.33)
Acquirer SPII	**0.97****	-0.04	**1.10****	0.27	**1.49****	0.45
	(0.02)	(0.92)	**(0.03)**	(0.55)	**(0.04)**	(0.58)
Acquirer asymmetric information	-9.44	-9.14	57.66*	-18.31	1.05	-57.00
	(0.71)	(0.72)	(0.05)	(0.52)	(0.98)	(0.26)
Log of acquirer firm size	-0.83**	-0.03	-0.60	-0.55*	0.30	0.20
	(0.02)	(0.92)	(0.13)	(0.08)	(0.61)	(0.70)
Acquirer return-on-equity	1.66	1.13	2.04	3.18***		
	(0.14)	(0.22)	(0.14)	(0.00)		
Acquirer cash holdings	-6.24***	-7.78***	-7.69***	-6.95***	1.44	-4.65
	(0.01)	(0.00)	(0.01)	(0.01)	(0.72)	(0.29)
Acquirer debt-to-equity	0.11	-0.08	-0.07	-0.46*	1.60***	-0.48
	(0.62)	(0.70)	(0.81)	(0.05)	(0.00)	(0.26)
Acquirer Tobin's Q	0.12	-0.12	-0.12	-0.03	0.05	-1.07***
	(0.56)	(0.49)	(0.63)	(0.90)	(0.89)	(0.00)

Relative size	-3.65***	-0.58	2.29***	3.50***	-1.50	0.91
	(0.00)	(0.51)	(0.01)	(0.00)	(0.28)	(0.63)
Target return-on-equity			0.82	0.70		
			(0.29)	(0.33)		
Target debt-to-equity			-0.06	-0.11	0.19	0.15
			(0.68)	(0.37)	(0.37)	(0.47)
Target Tobin's Q			0.08	0.11	-***	-1.01***
			(0.78)	(0.59)	(0.00)	(0.00)
Friendly deal	-2.67	1.72	-3.16	0.34	0.79	1.22
	(0.15)	(0.39)	(0.12)	(0.87)	(0.88)	(0.79)
Same industry dummy	-0.39	1.20	-0.36	1.22	0.36	0.40
	(0.62)	(0.14)	(0.71)	(0.19)	(0.80)	(0.80)
Tender offer	0.13	2.44**	-0.69	2.53*	-1.64	3.99*
	(0.89)	(0.03)	(0.58)	(0.07)	(0.38)	(0.09)
Toehold	-0.38	1.46	-0.57	-0.50	0.55	-0.35
	(0.85)	(0.39)	(0.80)	(0.79)	(0.89)	(0.92)
Deal completion	3.45***	0.32	3.92***	0.70		
	(0.01)	(0.81)	(0.01)	(0.62)		
Stock payment dummy	-3.73***	-1.91**	-5.28***	-2.24**	-3.09	2.86*
	(0.00)	(0.03)	(0.00)	(0.02)	(0.05)	(0.09)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	924	914	749	745	655	651
Adjusted R^2	0.15	0.12	0.20	0.17	0.20	0.21

Table VII Acquirer Merger Performance and SPII
(other measures of SPII)

This table reports the coefficients on acquirer SPII in regressions as in Table 3 when using other measures for the information. In columns (1), (2), and (3), the dependent variables are acquirer announcement return, combined announcement return, and post-merger ROA growth, respectively. In Panel A, I use the non-synchronicity from the market model regression, where I control for industry return, Fama-French three factors and the momentum factor. In Panel B, the stock price idiosyncratic information is measured by ($1-R^2$) from the market model regression controlling for industry return. In Panel C, the stock price idiosyncratic information is measured by ($1-R^2$) from the market model regression controlling for industry return, Fama-French three factors and the momentum factor. In Panel D, the stock price idiosyncratic information is measured by PIN number from Søren Hvidkjaer's website. In Panel E, the stock price idiosyncratic information is measured by the future earnings surprise that cannot be predicted by stock returns. Continuous variables are winsorized at 1% and 99%. All variables are defined in Appendix A. p-values are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

Dependent variable	Acquirer Announcement Return	Combined Announcement Return	Post-merger ROA Growth
	(1)	(2)	(3)
Panel A:			
Non-synchronicity	0.80**	0.93**	0.32
(Fama-French factors)	(0.03)	(0.02)	(0.66)
Number of observations	1,860	1,511	1,313
Adjusted R^2	0.10	0.14	0.15
Panel B:			
($1- R^2$)	1.63	3.84	6.24
	(0.61)	(0.28)	(0.27)
Number of observations	1,860	1,511	1,313
Adjusted R^2	0.09	0.14	0.15
Panel C:			
($1- R^2$)	2.36	3.97	4.07
(Fama-French three factors)	(0.42)	(0.23)	(0.43)

Number of observations	1,860	1,511	1,313
Adjusted R^2	0.09	0.14	0.15
Panel D:			
PIN	-3.01	-5.29	0.95
	(0.70)	(0.58)	(0.92)
Number of observations	777	602	519
Adjusted R^2	0.14	0.23	0.18
Panel E:			
Accounting measure of stock price idiosyncratic information	-8.14	-21.90**	-13.43
	(0.35)	(0.03)	(0.38)
Number of observations	1,679	1,362	1,198
Adjusted R^2	0.10	0.15	0.16

Table VIII 2SLS Regressions of Merger Performanceand Acquirer SPII

This table shows the 2SLS regression results where I control for the endogeneity of SPII. In the first step, the dependent variable is acquirer SPII. In the second step, I use the residual from the first step as the main independent variable. The dependent variables in models (1), (2), and (3) are acquirer announcement return, combined announcement return, and post-merger ROA growth, respectively. Continuous variables are winsorized at 1% and 99%. All variables are defined in Appendix A. p-values are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

1st Step Regression	Acquirer SPII
Intercept	7.70***
	(0.00)
Acquirer firm age	-0.14***
	(0.00)
Acquirer high-tech dummy	-0.55***
	(0.01)
Number of observations	2,018
Adjusted R^2	0.06

2nd Step Regression	Acquirer Announcement Return	Combined Announcement Return	Post-merger ROA Growth
	(1)	(2)	(3)
Intercept	9.85**	15.40***	0.17
	(0.04)	(0.00)	(0.83)
Residual from the 1st step	**0.60****	**0.66****	**0.88***
	(0.03)	**(0.03)**	**(0.06)**
Control variables as in Table 3	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Number of observations	1,836	1,490	1,321
p-value of chi-square test	<0.01	<0.01	<0.01

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Appendix A: Variable Definitions in Chapter I

Acquirer (Target) firm size equals firm market value 21 days before the deal announcement.

Acquirer advisor retention equals one if an acquirer uses the same advisor in a future merger within three years after the completion of the current deal, and zero otherwise. If the acquirer hires more than one advisor, the advisor retention variable equals one if any of these advisors are retained.

Acquirer advisors' future reputation is reputation rank one year before a future deal based on Thomson Financial Top 25 investment bank rankings of aggregate advised merger value (one represents the highest reputation). Advisory banks not included in the top 25 are assigned a rank of 26.

Acquirer announcement return equals acquirer stock cumulative return during days [-20, +1], where day 0 is the deal announcement day, minus the CRSP value weighted index return during the same period.

Acquirer industry-adjusted ROA equals acquirer ROA less industry median ROA in the last fiscal year before deal announcement (industry classification follows Fama and French, 1997).

Acquirer institutional cross-holding returns are calculated for each institution that holds both target and acquirer stocks. We calculate the combined return from each institution's holdings during the window of [-20, +1] days around the deal announcement and average the combined returns across institutions using its stock holding in the acquirer stock as weights.

Affiliated analysts work for the same investment bank as financial advisors. We compare affiliated analysts' recommendations 3 years pre-announcement with those afterwards until shareholder voting (post-announcement). Affiliated analysts **initiate** if they provide post-announcement recommendations only; **upgrade/downgrade** if post-announcement recommendations are better/worse than those pre-announcement, respectively; **keep the same recommendation** if post-announcement recommendations are the same as those pre-announcement or if they provide no post-announcement recommendations but issue post-announcement EPS forecasts; **drop coverage** if analysts provide pre-announcement recommendations but no post-announcement recommendation.

Affiliated analysts provide recommendations equals one if analysts provide recommendations after the merger announcement, and zero otherwise.

Affiliated analysts improve recommendations equals one if analysts initiate, upgrade, or keep the same recommendations after the merger announcement, and zero if analysts downgrade or drop recommendations.

Rankings of affiliated analysts' recommendations equals one, two, three, four, and five if analysts initiate, upgrade, keep the same, downgrade, and drop recommendations, respectively.

Acquirer shareholder approval rate equals *(F – M – I) / (N - M - I)*, where F is the number of "for" votes cast for a merger, M is the voting rights held by management, I is the voting rights held by affiliated institutional investors, and N is the total number of voting rights outstanding.

Management voting rights equals *M / N*, where *M* is the number of votes owned by management and N is the total number of voting rights outstanding.

Advisor-affiliated institutional voting rights equals *I / N*, where *I* is the number of voting rights owned by institutions affiliated with merger advisors one quarter pre-merger announcement and N is the total number of voting rights outstanding.

Deal value is the total value paid by the acquirer, excluding fees and expenses.

Financial advisors provide earnings per share (EPS) forecasts equals one if financial advisors issue forecasts for EPS for an acquirer post-merger, and zero otherwise.

EPS forecasts are classified into 3 categories: **accretion**, **neutral,** and **dilution** depending on whether post-merger earnings are estimated higher, the same, or lower than stand-alone earnings, respectively.

Financial advisors provide non-dilutive EPS forecasts equals one if advisors provide accretive or neutral EPS forecasts, and zero otherwise.

Rankings of financial advisors' EPS forecasts equals *negative* one when advisors do not provide EPS forecasts, equals zero when advisors provide dilutive EPS forecasts, and equals one when advisors provide non-dilutive EPS forecasts.

Financial advisors provide equity value (EV) estimations equals one if financial advisors provide target equity value estimations, and zero otherwise.

Financial advisors' EV estimations measured by **EV ratios,** equal the scaled difference between the average target equity valuation and the offer price.

Rankings of financial advisors' EV estimations equals *negative* one if advisors do not provide EV estimations, equals zero if EV ratios are negative, and equals one if EV

ratios are positive or zero.

Relative size equals transaction value divided by acquirer market value 21 days before the merger announcement.

Same industry indicator equals one if the acquirer and target firms are in same industry (classified in Fama and French, 1997), and zero otherwise.

Stock payment equals one if a deal is paid with stock only, and zero otherwise.

Toehold equals percentage of target shares held by the acquirer at deal announcement.

Appendix B: Example of Financial Advisors' Opinions

The following paragraphs come from the joint proxy statement issued by New York Community Bancorp (acquirer) and Roslyn Bancorp (target). This proxy statement was officially filed with the SEC on September 23, 2003, and delivered to both firms' shareholders on September 25, 2003. Citigroup Global Markets was the financial advisor for New York Community while Goldman Sachs and Sandler O'Neill were the financial advisors for Roslyn Bancorp.

Opinion of Citigroup Global Markets Inc. to New York Community

Citigroup Global Markets Inc. was retained to act as financial advisor to New York Community in connection with a potential combination transaction with Roslyn. Pursuant to Citigroup Global Markets' letter agreement with New York Community, dated May 30, 2003, Citigroup Global Markets rendered an opinion to the New York Community board of directors on June 26, 2003, to the effect that, based upon and subject to the considerations and limitations set forth in the opinion, Citigroup Global Markets' work described below and other factors it deemed relevant, as of that date, the exchange ratio in the proposed merger was fair, from a financial point of view, to New York Community. …..

Discounted Cash Flow Analysis. Citigroup Global Markets performed a discounted cash flow analysis to estimate a range for the implied equity value per share of Roslyn common stock as of June 25, 2003, including certain potential expenses and cost savings forecasted by management to result from the merger. Citigroup Global Markets performed this analysis both including and excluding the potential impact on Roslyn's forecasted earnings of the $3.5 billion downsizing of Roslyn's securities portfolio expected by management to be effected following the merger. In this analysis, Citigroup Global Markets assumed a weighted average cost of capital of 10.6% and used a range of 8.5% to 12.5% to derive the present values of (1) Roslyn's estimated free cash flows available to stockholders from 2004 to 2008, plus (2) Roslyn's terminal value at the end of 2008. Terminal values for Roslyn were calculated based on a range of 9.0x to 12.0x estimated 2009 EPS. In performing this analysis, Citigroup Global Markets used IBES estimates of EPS as of June 25, 2003 for Roslyn and an estimated long-term annual growth rate for Roslyn's EPS (also obtained from IBES) of 9.0%. EPS data were adjusted to account for certain restructuring charges anticipated by management to result from the merger and management's assumptions of cost savings resulting from the merger of 35% of Roslyn's pre-tax controllable overhead expense, with an annual growth rate of such cost savings of 3% per year after 2004. In determining cash flows available to stockholders, Citigroup Global Markets used forecasted dividend payout ratios (in other words, percentages of adjusted EPS payable to stockholders), which assume the maintenance of a constant ratio of tangible common equity to tangible assets of 5.0% and an asset growth rate of 10% per annum. The results of these analyses are set forth below:

Without Downsizing				
	Terminal Multiple			
Discount Rate	9.0x	10.0x	11.0x	12.0x
8.5%	$26.58	$28.82	$31.07	$33.32
9.5	$25.50	$27.64	$29.79	$31.94
10.6	$24.43	$26.47	$28.52	$30.56
11.5	$23.51	$25.47	$27.43	$29.39
12.5	$22.58	$24.46	$26.33	$28.21

With Downsizing				
	Terminal Multiple			
Discount Rate	9.0x	10.0x	11.0x	12.0x
8.5%	$20.33	$22.18	$24.02	$25.86
9.5	$19.48	$21.24	$23.00	$24.77
10.6	$18.64	$20.32	$22.00	$23.67
11.5	$17.91	$19.52	$21.13	$22.74
12.5	$17.19	$18.73	$20.27	$21.80

Based on these results, Citigroup Global Markets derived a reference range for the implied equity value per share of Roslyn common stock without taking into account the potential impact of the expected downsizing of Roslyn's securities portfolio and also derived a reference range for the implied equity value per share of Roslyn common stock taking the potential impact of the expected downsizing into account. Citigroup Global Markets noted that the implied value per share of Roslyn common stock of $20.86 based on the exchange ratio in the merger and the closing price of New York Community common stock on June 25, 2003 and the implied value per share of Roslyn common stock of $20.33 based on the exchange ratio in the merger and the closing price of New York Community common stock on June 26, 2003 were below both reference ranges for the implied equity value per share of Roslyn common stock derived by Citigroup Global Markets in its discounted cash flow analysis. The following table summarizes the results of these analyses:

Derived Range Without Downsizing	Implied Merger Value June 25, 2003	Implied Merger Value June 26, 2003
$23.51 – $27.64	$20.86	$20.33
Derived Range With Downsizing	**Implied Merger Value June 25, 2003**	**Implied Merger Value June 26, 2003**
$21.13 – $24.77	$20.86	$20.33

Forecasted Pro Forma Financial Analysis. Citigroup Global Markets analyzed the estimated financial impact of the merger on New York Community's 2004 and 2005 estimated EPS and 2004 and 2005 estimated cash EPS ("CEPS"). CEPS is determined by adding per share amortization of acquisition-related intangible assets to EPS. In the course of this analysis, Citigroup Global Markets used IBES estimates of EPS for 2004 and 2005, utilizing the IBES forecasted long-term EPS growth rate of 13.5%, and assumed, based on management forecasts, that the merger will result in cost savings equal to 35% of Roslyn's pre-tax controllable overhead expense. Based on its analysis, Citigroup Global Markets determined that the merger would be accretive to New York Community's estimated EPS and estimated CEPS for 2004 and 2005 and noted that the tangible common ratio would improve to surpass pre-transaction levels during that period……

Appendix C: Variable Definitions in Chapter II

Accounting measure of stock price idiosyncratic information equals the residual from the regression $r_t = a + b_0 \Delta E_t + \sum_{\tau} b_\tau \Delta E_{t+\tau} + \sum_{\tau} c_\tau r_{t+\tau} + u_t$, where r_t is the annual stock return during the last fiscal year before deal announcement, $\Delta E_{t+\tau}$ is the earnings per share change τ periods ahead scaled by the price at the beginning of the fiscal year t, and τ is from one to three. The coefficients are estimated for each industry defined by the 3-digit SIC codes.

Acquirer (Target) debt-to-equity is acquirer (target) firm debt divided by equity in the prior fiscal year before deal announcement (COMPUSTAT items data9/data60).

Acquirer (Target) return-on-equity equals acquirer (target) firm earnings divided by average equity in the prior fiscal year before deal announcement (COMPUSTAT items 2*data20/(data60+data60 (t – 1)).

Acquirer (Target) Tobin's Q is market value of equity plus book value of assets minus book value of equity, scaled by book value of assets, all measured at the end of the fiscal year before deal announcement (COMPUSTAT items (data24*data25+data6-data60)/data6).

Acquirer announcement returnequals acquirer accumulated abnormal return over (-1, +7) around deal announcement; I use market value-weighted return as the benchmark.

Acquirer asymmetric information is the average of absolute abnormal return (-1, +1) at around the previous four quarterly earnings announcements before the deal announcement.

Acquirer blockholder ownership is acquirer blockholder ownership one quarter before deal announcement. I define institutional investors as blockholders if their ownership is higher than 5%.

Acquirer cash holdings equals acquirer cash holdings divided by total value of assets (COMPUSTAT items data1/data6).

Acquirer firm age equals the log of the number of days the firm listed on the stock market.

Acquirer firm size ($mil) is acquirer equity capitalization two days before deal announcement.

Acquirer high-tech dummy equals one if the acquirer has the 3-digit SIC code of 357, 366, 367, 381, 382, 384, 481, 489, or 737; otherwise, it equals zero.

Acquirer SPII equals log $[(1-R^2)/R^2]$, where R^2 is from the market model regression controlling for industry value-weighted return. It is calculated based on daily returns during (-295, -43) before deal announcement. I require that there are at least 100 return observations. I define industry by 3-digit SIC codes.

Acquirer merger investment equals deal value from SDC scaled by the acquirer book value of assets in the prior fiscal year of the merger announcement.

Acquirer MTB ratio equals acquirer market value of common stock divided by book value of equity in the prior fiscal year before deal announcement (COMPUSTAT items data24*data25/data60).

Combined announcement return is the value-weighted acquirer announcement return and target announcement return, where acquirer announcement return is the accumulated abnormal return over (-1, +7) around deal announcement and target announcement return is the accumulated abnormal return over (-43, +7) around deal announcement. The weights are acquirer and target firms' equity capitalization at two and 44 days before deal announcement, respectively.

Deal completion equals one if the deal is completed as indicated in SDC; otherwise, zero.

Friendly deal equals one if the attitude field in SDC is not marked ‘‘unsolicited’’ or ‘‘hostile’’; otherwise, zero.

Merger serial dummy equals one if the acquirer announced mergers within one year before the deal announcement; otherwise, zero.

PIN is the from SørenHvidkjaer’s website. It measures the probability of informed trading.

Post-merger ROA growth is the ROA change after the merger. I use value-weighted ROA of merging firms before the merger as the original ROA, using pre-merger total assets as the weight (for completed deals only).

Relative size is deal value divided by acquirer equity capitalization two days before deal announcement.

Same industry dummy equals one if the acquirer and the target are in the same industry according to 2-digit SIC codes; otherwise, zero.

Stock payment dummy equals one if the deal is paid only with stock; otherwise, zero.

Target firm size ($mil) is target equity capitalization 44 days before deal announcement.

Tender offer equals one if the bid involves a tender offer as recorded in SDC; otherwise, zero.

Toehold equals one if the fraction of the target's common stock owned by the bidder is greater than 5% at merger announcement date; otherwise, zero.

VITA
WenjingOuyang

EDUCATION

Ph.D. in Finance, Drexel University (2012)
M.S. in Finance, Shanghai Institute of Foreign Trade, China (2004)
B.S. in Finance, Shanghai Institute of Foreign Trade, China (2001)

RESEARCH

- **Merger Investment and Stock Price Idiosyncratic Information** (with Samuel Szewczyk)*
  Financial Management Association (FMA) Annual Meeting, Denver, 2011
  Southern Finance Association (SFA) Annual Meeting, Key West, 2011
  Financial Management Association (FMA) Doctoral Student Consortium, New York, 2010
  *****: *previous version is under the name "Acquirer Return and Investor Private Information"*
- **Do Shareholders Listen? M&A Advisor Opinions and Shareholder Voting** (with David Becher and JayCai)
  Financial Intermediation Research Society (FIRS) Conference, Sydney, 2011
  American Law and Economics Association (ALEA) Annual Meeting, Princeton University, 2010
  Financial Economics and Accounting (FEA) Annual Meeting, the University of Maryland, 2010
  Financial Management Association (FMA) Annual Meeting, New York, 2010
  Southern Finance Association (SFA) Annual Meeting, Asheville, 2010
  Eastern Financial Association (EFA) Annual Meeting, Miami, 2010
- **Merger Financing and Stock Price Idiosyncratic Information**

ACADEMICACTIVITIES

Conference session chair: FMA 2011, SFA 2011
Conference presentation: FMA 2011, SFA 2011, FMA 2010, FMA Doctoral Student Consortium 2010, SFA, 2010, EFA 2010
Conference discussion: FMA 2011, SFA 2011, FMA 2010, SFA, 2010, EFA 2010
Professional affiliation: American Financial Association (AFA), ALEA, FMA, SFA, EFA